

Rs. 1,742,852/-

CONTRACT FOR CONSULTANT'S SERVICES

Lump-Sum (Phase 1)

Project Name: Karachi Mobility Project

Loan No. IBRD-89950

Assignment Title: Consulting Services in Preparation of Detailed Design, Procurement Support and Construction Supervision for Yellow Bus Rapid Transit Corridor

Contract No. PK-SMTA-122605-CS-QCBS

between

The Sindh Mass Transit Authority (SMTA)

and

**M/s Dar-al-Handasah Consultants (Shair & Partners)
JV**

M/s National Engineering Services Pakistan (Pvt.) Ltd.

September 2nd
Dated *August* _____, 2021

[Signature]



[Signature]

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STAMP OFFICE CITY COURT, KARACHI

issued to Sarfaraz Khan Adw
 IN/LEG No. 2767 KBA
 Adm D.S.R. No. 30 Dt. 25-5-21
 In behalf of Challan No. 308 Dt. 25-5-21
 for the purpose of entry
 Entry No. 22 Dt. 25-5-21

I. Form of Contract

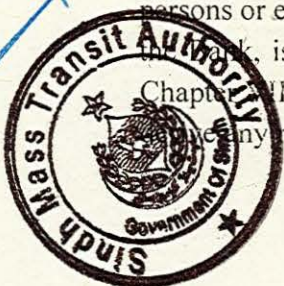
To Office Karachi

LUMP-SUM (PHASE 1)

This CONTRACT (hereinafter called the "Contract") is made the 2nd day of the month of September, 2021, between, on the one hand, the Sindh Mass Transit Authority (hereinafter called the "Client") and, on the other hand, a Joint Venture " M/s Dar Al Handasah Consultants (Shair and Partners) in joint venture with M/s National Engineering Services Pakistan (Pvt) Limited" consisting of the following entities, each member of which will be jointly and severally liable to the Client for all the Consultant's obligations under this Contract, namely, M/s Dar-al-Handasah Consultants (Shair & Partners) and M/s National Engineering Services Pakistan (Pvt.) Ltd (hereinafter called the "Consultant").

WHEREAS

- the Client has requested the Consultant to provide certain consulting services as defined in this Contract (hereinafter called the "Services");
- the Consultant, having represented to the Client that it has the required professional skills, expertise and technical resources, has agreed to provide the Services on the terms and conditions set forth in this Contract;
- the Client has received a loan from the International Bank for Reconstruction and Development (IBRD) toward the cost of the Services and intends to apply a portion of the proceeds of this loan to eligible payments under this Contract, it being understood that (i) payments by the Bank will be made only at the request of the Client and upon approval by the Bank; (ii) such payments will be subject, in all respects, to the terms and conditions of the loan agreement, including prohibitions of withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Client, is prohibited by the decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations; and (iii) no party other than the Client shall exercise any rights from the loan agreement or have any claim to the loan proceeds;





NOW THEREFORE the parties hereto hereby agree as follows:

1. The following documents attached hereto shall be deemed to form an integral part of this Contract:

- a) The General Conditions of Contract (including Attachment 1 "Fraud and Corruption");
- b) The Special Conditions of Contract;
- c) Appendices:

Appendix A: Terms of Reference

Appendix B: Key Experts

Appendix C: Breakdown of Contract Price

Appendix D: Form of Advance Payments Guarantee

Appendix E Code of Conduct (ES)

In the event of any inconsistency between the documents, the following order of precedence shall prevail: the Special Conditions of Contract; the General Conditions of Contract, including Attachment 1; Appendix A; Appendix B; Appendix C; Appendix D; and Appendix E. Any reference to this Contract shall include, where the context permits, a reference to its Appendices.

2. The mutual rights and obligations of the Client and the Consultant shall be as set forth in the Contract, in particular:

- a) the Consultant shall carry out the Services in accordance with the provisions of the Contract; and
- b) the Client shall make payments to the Consultant in accordance with the provisions of the Contract.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

For and on behalf of Sindh Mass Transit Authority

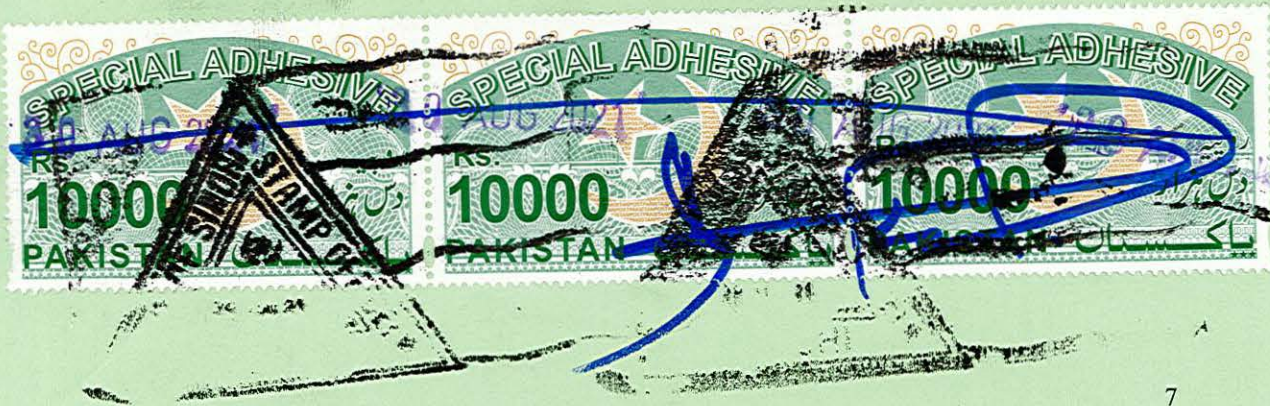
Project Director (Karachi Mobility Project)



For and on behalf of M/s Dar-al-Handasah Consultants (Shair & Partners) JV M/s National Engineering Services Pakistan (Pvt.) Ltd

Name and signature





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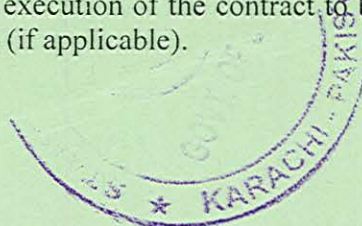
II. General Conditions of Contract

A. GENERAL PROVISIONS

1. Definitions

1.1. Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

- (a) **"Applicable Law"** means the laws and any other instruments having the force of law in the Client's country, or in such other country as may be specified in the **Special Conditions of Contract (SCC)**, as they may be issued and in force from time to time.
- (b) **"Bank"** means the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).
- (c) **"Borrower"** means the Government, Government agency or other entity that signs the financing agreement with the Bank.
- (d) **"Client"** means the implementing agency that signs the Contract for the Services with the Selected Consultant.
- (e) **"Client's Personnel"** refers to the staff, labor and other employees (if any) of the Client engaged in fulfilling the Client's obligations under the Contract; and any other personnel identified as Client's Personnel, by a notice from the Client to the Consultant.
- (f) **"Consultant"** means a legally-established professional consulting firm or entity selected by the Client to provide the Services under the signed Contract.
- (g) **"Contract"** means the legally binding written agreement signed between the Client and the Consultant and which includes all the attached documents listed in its paragraph 1 of the Form of Contract (the General Conditions (GCC), the Special Conditions (SCC), and the Appendices).
- (h) **"Contractor"** means the person named as contractor in the contract to be supervised by the Consultant (if applicable).
- (i) **"Contractor's Personnel"** means personnel whom the Contractor utilizes in the execution of its contract, including the staff, labor and other employees of the Contractor and each subcontractor; and any other personnel assisting the Contractor in the execution of the contract to be supervised by the Consultant (if applicable).



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- (j) **“Day”** means a working day unless indicated otherwise.
- (k) **“ES”** means environmental and social (including Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH).
- (l) **“Effective Date”** means the date on which this Contract comes into force and effect pursuant to Clause GCC 11.
- (m) **“Experts”** means, collectively, Key Experts, Non-Key Experts, or any other personnel of the Consultant, Sub-consultant or JV member(s) assigned by the Consultant to perform the Services or any part thereof under the Contract.
- (n) **“Foreign Currency”** means any currency other than the currency of the Client’s country.
- (o) **“GCC”** means these General Conditions of Contract.
- (p) **“Government”** means the government of the Client’s country.
- (q) **“Joint Venture (JV)”** means an association with or without a legal personality distinct from that of its members, of more than one entity where one member has the authority to conduct all businesses for and on behalf of any and all the members of the JV, and where the members of the JV are jointly and severally liable to the Client for the performance of the Contract.
- (r) **“Key Expert(s)”** means an individual professional whose skills, qualifications, knowledge and experience are critical to the performance of the Services under the Contract and whose Curricula Vitae (CV) was taken into account in the technical evaluation of the Consultant’s proposal.
- (s) **“Local Currency”** means the currency of the Client’s country.
- (t) **“Non-Key Expert(s)”** means an individual professional provided by the Consultant or its Sub-consultant to perform the Services or any part thereof under the Contract.
- (u) **“Party”** means the Client or the Consultant, as the case may be, and **“Parties”** means both of them.
- (v) **“SCC”** means the Special Conditions of Contract by which the GCC may be amended or supplemented but not over-written.
- (w) **“Services”** means the work to be performed by the Consultant pursuant to this Contract, as described in Appendix A hereto.



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- (x) “Sexual Exploitation and Abuse” “(SEA)” means the following:

Sexual Exploitation is defined as any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another.

Sexual Abuse is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions.

- (y) “Sexual Harassment” “(SH)” is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature by the Experts with other Experts, Contractor’s (if applicable) or Client’s Personnel.
- (z) “Site” (if applicable) means the land and other places where Works are to be executed or facilities to be installed, and such other land or places as may be specified in the Contractor’s Contract as forming part of the Site.
- (aa) “Sub-consultants” means an entity to whom/which the Consultant subcontracts any part of the Services while remaining solely liable for the execution of the Contract.
- (bb) “Third Party” means any person or entity other than the Government, the Client, the Consultant or a Sub-consultant.

2. Relationship between the Parties

2.1.Nothing contained herein shall be construed as establishing a relationship of master and servant or of principal and agent as between the Client and the Consultant. The Consultant, subject to this Contract, has complete charge of the Experts and Sub-consultants, if any, performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.

3. Law Governing Contract

3.1.This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

4. Language

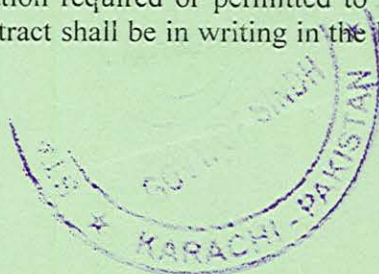
4.1.This Contract has been executed in the language specified in the SCC, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

5. Headings

5.1.The headings shall not limit, alter or affect the meaning of this Contract.

6. Communications

6.1.Any communication required or permitted to be given or made pursuant to this Contract shall be in writing in the language specified





in Clause GCC 4. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent to such Party at the address specified in the SCC.

6.2.A Party may change its address for notice hereunder by giving the other Party any communication of such change to the address specified in the SCC.

7. Location

7.1.The Services shall be performed at such locations as are specified in **Appendix A** hereto and, where the location of a particular task is not so specified, at such locations, whether in the Government's country or elsewhere, as the Client may approve.

8. Authority of Member in Charge

8.1.In case the Consultant is a Joint Venture, the members hereby authorize the member specified in the **SCC** to act on their behalf in exercising all the Consultant's rights and obligations towards the Client under this Contract, including without limitation the receiving of instructions and payments from the Client.

9. Authorized Representatives

9.1.Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract by the Client or the Consultant may be taken or executed by the officials specified in the **SCC**.

10. Fraud and Corruption

10.1. The Bank requires compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the Bank's Sanctions Framework, as set forth in Attachment 1 to the GCC.

a. Commissions and Fees

10.2. The Client requires the Consultant to disclose any commissions, gratuities or fees that may have been paid or are to be paid to agents or any other party with respect to the selection process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee. Failure to disclose such commissions, gratuities or fees may result in termination of the Contract and/or sanctions by the Bank.

B. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

11. Effectiveness of Contract

11.1. This Contract shall come into force and effect on the date (the "Effective Date") of the Client's notice to the Consultant instructing the Consultant to begin carrying out the Services. This notice shall confirm that the effectiveness conditions, if any, listed in





the SCC have been met.

12. Termination of Contract for Failure to Become Effective

12.1. If this Contract has not become effective within such time period after the date of Contract signature as specified in the SCC, either Party may, by not less than twenty two (22) days written notice to the other Party, declare this Contract to be null and void, and in the event of such a declaration by either Party, neither Party shall have any claim against the other Party with respect hereto.

13. Commencement of Services

13.1. The Consultant shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the SCC.

14. Expiration of Contract

14.1. Unless terminated earlier pursuant to Clause GCC 19 hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SCC.

15. Entire Agreement

15.1. This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

16. Modifications or Variations

16.1. Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any proposals for modification or variation made by the other Party.

16.2. In cases of substantial modifications or variations, the prior written consent of the Bank is required.

17. Force Majeure

a. Definition

17.1. For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and makes a Party's performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible under the circumstances, and subject to those requirements, includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action confiscation or any other action by Government agencies.

17.2. Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or such Party's Experts, Sub-consultants or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected to both take into account at the time of the conclusion of this Contract, and





avoid or overcome in the carrying out of its obligations hereunder.

17.3. Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

b. No Breach of Contract

17.4. The failure of a Party to fulfill any of its obligations hereunder shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

c. Measures to be Taken

17.5. A Party affected by an event of Force Majeure shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall take all reasonable measures to minimize the consequences of any event of Force Majeure.

17.6. A Party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible, and in any case not later than fourteen (14) calendar days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give written notice of the restoration of normal conditions as soon as possible.

17.7. Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

17.8. During the period of their inability to perform the Services as a result of an event of Force Majeure, the Consultant, upon instructions by the Client, shall either:

- (a) demobilize, in which case the Consultant shall be reimbursed for additional costs they reasonably and necessarily incurred, and, if required by the Client, in reactivating the Services; or
- (b) continue with the Services to the extent reasonably possible, in which case the Consultant shall continue to be paid under the terms of this Contract and be reimbursed for additional costs reasonably and necessarily incurred.

17.9. In the case of disagreement between the Parties as to the existence or extent of Force Majeure, the matter shall be settled according to Clauses GCC 45 & 46.

18. Suspension

18.1. The Client may, by written notice of suspension to the Consultant, suspend part or all payments to the Consultant hereunder if the Consultant fails to perform any of its obligations under this





Contract, including the carrying out of the Services, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the Consultant to remedy such failure within a period not exceeding thirty (30) calendar days after receipt by the Consultant of such notice of suspension.

19. Termination

19.1. This Contract may be terminated by either Party as per provisions set up below:

a. By the Client

19.1.1. The Client may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (f) of this Clause. In such an occurrence the Client shall give at least thirty (30) calendar days' written notice of termination to the Consultant in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e); and at least five (5) calendar days' written notice in case of the event referred to in (f):

- (a) If the Consultant fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension pursuant to Clause GCC 18;
- (b) If the Consultant becomes (or, if the Consultant consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;
- (c) If the Consultant fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause GCC 46.1;
- (d) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;
- (e) If the Client, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;
- (f) If the Consultant fails to confirm availability of Key Experts as required in Clause GCC 13.

19.1.2. Furthermore, if the Client determines that the Consultant has engaged in Fraud and Corruption in competing for or in executing the Contract, then the Client may, after giving fourteen (14) calendar days written notice to the Consultant, terminate the Consultant's employment under





the Contract.

b. By the Consultant

19.1.3. The Consultant may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Client, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

- (a) If the Client fails to pay any money due to the Consultant pursuant to this Contract and not subject to dispute pursuant to Clause GCC 45.1 within forty-five (45) calendar days after receiving written notice from the Consultant that such payment is overdue.
- (b) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days.
- (c) If the Client fails to comply with any final decision reached as a result of arbitration pursuant to Clause GCC 46.1.
- (d) If the Client is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Consultant may have subsequently approved in writing) following the receipt by the Client of the Consultant's notice specifying such breach.

c. Cessation of Rights and Obligations

19.1.4. Upon termination of this Contract pursuant to Clauses GCC 12 or GCC 19 hereof, or upon expiration of this Contract pursuant to Clause GCC 14, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued on the date of termination or expiration, (ii) the obligation of confidentiality set forth in Clause GCC 22, (iii) the Consultant's obligation to permit inspection, copying and auditing of their accounts and records set forth in Clause GCC 25 and to cooperate and assist in any inspection or investigation, and (iv) any right which a Party may have under the Applicable Law.

d. Cessation of Services

19.1.5. Upon termination of this Contract by notice of either Party to the other pursuant to Clauses GCC 19a or GCC 19b, the Consultant shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum. With respect to documents prepared by the Consultant and equipment and materials





furnished by the Client, the Consultant shall proceed as provided, respectively, by Clauses GCC 27 or GCC 28.

e. Payment upon Termination

19.1.6. Upon termination of this Contract, the Client shall make the following payments to the Consultant:

- (a) payment for Services satisfactorily performed prior to the effective date of termination; and
- (b) in the case of termination pursuant to paragraphs (d) and (e) of Clause GCC 19.1.1, reimbursement of any reasonable cost incidental to the prompt and orderly termination of this Contract, including the cost of the return travel of the Experts.

C. OBLIGATIONS OF THE CONSULTANT

20. General

a. Standard of Performance

20.1. The Consultant shall perform the Services and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Consultant shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with the third parties.

20.2. The Consultant shall employ and provide such qualified and experienced Experts and Sub-consultants as are required to carry out the Services.

20.3. The Consultant may subcontract part of the Services to an extent and with such Key Experts and Sub-consultants as may be approved in advance by the Client. Notwithstanding such approval, the Consultant shall retain full responsibility for the Services.

b. Law Applicable to Services

20.4. The Consultant shall perform the Services in accordance with the Contract and the Applicable Law and shall take all practicable steps to ensure that any of its Experts and Sub-consultants, comply with the Applicable Law.

20.5. Throughout the execution of the Contract, the Consultant shall comply with the import of goods and services prohibitions in the Client's country when

- (a) as a matter of law or official regulations, the





Borrower's country prohibits commercial relations with that country; or

- (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country.

20.6. The Client shall notify the Consultant in writing of relevant local customs, and the Consultant shall, after such notification, respect such customs.

21. Conflict of Interest

21.1. The Consultant shall hold the Client's interests paramount, without any consideration for future work, and strictly avoid conflict with other assignments or their own corporate interests.

- a. **Consultant Not to Benefit from Commissions, Discounts, etc.**

21.1.1 The payment of the Consultant pursuant to GCC F (Clauses GCC 39 through 43) shall constitute the Consultant's only payment in connection with this Contract and, subject to Clause GCC 21.1.3, the Consultant shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or in the discharge of its obligations hereunder, and the Consultant shall use its best efforts to ensure that any Sub-consultants, as well as the Experts and agents of either of them, similarly shall not receive any such additional payment.

21.1.2 Furthermore, if the Consultant, as part of the Services, has the responsibility of advising the Client on the procurement of goods, works or services, the Consultant shall comply with the Bank's Applicable Regulations, and shall at all times exercise such responsibility in the best interest of the Client. Any discounts or commissions obtained by the Consultant in the exercise of such procurement responsibility shall be for the account of the Client.

- b. **Consultant and Affiliates Not to Engage in Certain Activities**

21.1.3 The Consultant agrees that, during the term of this Contract and after its termination, the Consultant and any entity affiliated with the Consultant, as well as any Sub-consultants and any entity affiliated with such Sub-consultants, shall be disqualified from providing goods, works or non-consulting services resulting from or directly related to the Consultant's Services for the preparation or implementation of the project.

- c. **Prohibition of**

21.1.4 The Consultant shall not engage, and shall cause its Experts





Conflicting Activities

as well as its Sub-consultants not to engage, either directly or indirectly, in any business or professional activities that would conflict with the activities assigned to them under this Contract.

d. Strict Duty to Disclose Conflicting Activities

21.1.5 The Consultant has an obligation and shall ensure that its Experts and Sub-consultants shall have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of their Client, or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Consultant or the termination of its Contract.

22. Confidentiality

22.1. Except with the prior written consent of the Client, the Consultant and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the Consultant and the Experts make public the recommendations formulated in the course of, or as a result of, the Services.

23. Liability of the Consultant

23.1. Subject to additional provisions, if any, set forth in the SCC, the Consultant's liability under this Contract shall be provided by the Applicable Law.

24. Insurance to be taken out by the Consultant

24.1. The Consultant (i) shall take out and maintain, and shall cause any Sub-consultants to take out and maintain, at its (or the Sub-consultants', as the case may be) own cost but on terms and conditions approved by the Client, insurance against the risks, and for the coverage specified in the SCC, and (ii) at the Client's request, shall provide evidence to the Client showing that such insurance has been taken out and maintained and that the current premiums therefore have been paid. The Consultant shall ensure that such insurance is in place prior to commencing the Services as stated in Clause GCC 13.

25. Accounting, Inspection and Auditing

25.1. The Consultant shall keep, and shall make all reasonable efforts to cause its Sub-consultants to keep, accurate and systematic accounts and records in respect of the Services and in such form and detail as will clearly identify relevant time changes and costs.

25.2. Pursuant to paragraph 2.2 e. of Attachment 1 to the General Conditions, the Consultant shall permit and shall cause its agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and personnel, to permit, the Bank and/or persons appointed by the Bank to inspect the site and/or the accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have such





accounts, records and other documents audited by auditors appointed by the Bank. The Consultant's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 10.1 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures)..

**26. Reporting
Obligations**

26.1. The Consultant shall submit to the Client the reports and documents specified in **Appendix A**, in the form, in the numbers and within the time periods set forth in the said Appendix.

**27. Proprietary Rights
of the Client in
Reports and
Records**

27.1. Unless otherwise indicated in the **SCC**, all reports and relevant data and information such as maps, diagrams, plans, databases, other documents and software, supporting records or material compiled or prepared by the Consultant for the Client in the course of the Services shall be confidential and become and remain the absolute property of the Client. The Consultant shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Client, together with a detailed inventory thereof. The Consultant may retain a copy of such documents, data and/or software but shall not use the same for purposes unrelated to this Contract without prior written approval of the Client.

27.2. If license agreements are necessary or appropriate between the Consultant and third parties for purposes of development of the plans, drawings, specifications, designs, databases, other documents and software, the Consultant shall obtain the Client's prior written approval to such agreements, and the Client shall be entitled at its discretion to require recovering the expenses related to the development of the program(s) concerned. Other restrictions about the future use of these documents and software, if any, shall be specified in the **SCC**.

**28. Equipment,
Vehicles and
Materials**

28.1. Equipment, vehicles and materials made available to the Consultant by the Client, or purchased by the Consultant wholly or partly with funds provided by the Client, shall be the property of the Client and shall be marked accordingly. Upon termination or expiration of this Contract, the Consultant shall make available to the Client an inventory of such equipment, vehicles and materials and shall dispose of such equipment, vehicles and materials in accordance with the Client's instructions. While in possession of such equipment, vehicles and materials, the Consultant, unless otherwise instructed by the Client in writing, shall insure them at the expense of the Client in an amount equal to their full replacement value.





28.2. Any equipment or materials brought by the Consultant or its Experts into the Client's country for the use either for the project or personal use shall remain the property of the Consultant or the Experts concerned, as applicable.

29. Code of Conduct

29.1. If specified in the SCC, the Consultant shall have a Code of Conduct for Experts (ES).

The Consultant shall take all necessary measures to ensure that each Expert is made aware of the Code of Conduct including specific behaviors that are prohibited, and understands the consequences of engaging in such prohibited behaviors.

These measures include providing instructions and documentation that can be understood by the Experts and seeking to obtain that person's signature acknowledging receipt of such instructions and/or documentation, as appropriate.

The Consultant shall also ensure that the Code of Conduct is visibly displayed in locations where the Services are provided, including if applicable, on the Site, as well as in areas outside the Site accessible to the local community and project affected people. The posted Code of Conduct shall be provided in languages comprehensible to Experts, Contractor's Personnel, Client's Personnel and the local community if applicable.

D. CONSULTANT'S EXPERTS AND SUB-CONSULTANTS

30. Description of Key Experts

30.1. The title, agreed job description, minimum qualification and estimated period of engagement to carry out the Services of each of the Consultant's Key Experts are described in **Appendix B**.

31. Replacement of Key Experts

31.1. Except as the Client may otherwise agree in writing, no changes shall be made in the Key Experts.

31.2. Notwithstanding the above, the substitution of Key Experts during Contract execution may be considered only based on the Consultant's written request and due to circumstances outside the reasonable control of the Consultant, including but not limited to death or medical incapacity. In such case, the Consultant shall forthwith provide as a replacement, a person of equivalent or better qualifications and experience, and at the same rate of remuneration.

32. Removal of Experts or Sub-consultants

If the Client finds that any of the Experts or Sub-consultant has committed serious misconduct or has been charged with having committed a criminal action, or if the Client determines that a Consultant's Expert or Sub-consultant has engaged in Fraud and Corruption while performing the Services, the Consultant shall, at





the Client's written request, provide a replacement.

In the event that any of Key Experts, Non-Key Experts or Sub-consultants is found by the Client to be incompetent or incapable in discharging assigned duties, the Client, specifying the grounds therefore, may request the Consultant to provide a replacement.

Any replacement of the removed Experts or Sub-consultants shall possess better qualifications and experience and shall be acceptable to the Client.

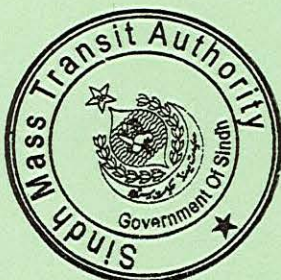
32.4. The Consultant shall bear all costs arising out of or incidental to any removal and/or replacement of such Experts.

E. OBLIGATIONS OF THE CLIENT

33. Assistance and Exemptions

33.1. Unless otherwise specified in the SCC, the Client shall use its best efforts to:

- (a) Assist the Consultant with obtaining work permits and such other documents as shall be necessary to enable the Consultant to perform the Services.
- (b) Assist the Consultant with promptly obtaining, for the Experts and, if appropriate, their eligible dependents, all necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in the Client's country while carrying out the Services under the Contract.
- (c) Facilitate prompt clearance through customs of any property required for the Services and of the personal effects of the Experts and their eligible dependents.
- (d) Issue to officials, agents and representatives of the Government all such instructions and information as may be necessary or appropriate for the prompt and effective implementation of the Services.
- (e) Assist the Consultant and the Experts and any Sub-consultants employed by the Consultant for the Services with obtaining exemption from any requirement to register or obtain any permit to practice their profession or to establish themselves either individually or as a corporate entity in the Client's country according to the applicable law in the Client's country.
- (f) Assist the Consultant, any Sub-consultants and the Experts of either of them with obtaining the privilege, pursuant to the applicable law in the Client's country,





of bringing into the Client's country reasonable amounts of foreign currency for the purposes of the Services or for the personal use of the Experts and of withdrawing any such amounts as may be earned therein by the Experts in the execution of the Services.

- (g) Provide to the Consultant any such other assistance as may be specified in the SCC.

34. Access to Project Site

34.1. The Client warrants that the Consultant shall have, free of charge, unimpeded access to the project site in respect of which access is required for the performance of the Services. The Client will be responsible for any damage to the project site or any property thereon resulting from such access and will indemnify the Consultant and each of the experts in respect of liability for any such damage, unless such damage is caused by the willful default or negligence of the Consultant or any Sub-consultants or the Experts of either of them.

35. Change in the Applicable Law Related to Taxes and Duties

35.1. If, after the date of this Contract, there is any change in the applicable law in the Client's country with respect to taxes and duties which increases or decreases the cost incurred by the Consultant in performing the Services, then the remuneration and reimbursable expenses otherwise payable to the Consultant under this Contract shall be increased or decreased accordingly by agreement between the Parties hereto, and corresponding adjustments shall be made to the Contract price amount specified in Clause GCC 39.1

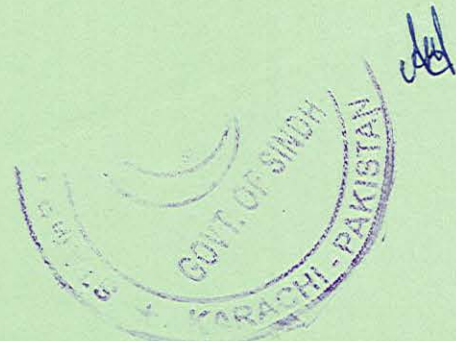
36. Services, Facilities and Property of the Client

36.1. The Client shall make available to the Consultant and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described in the Terms of Reference (Appendix A) at the times and in the manner specified in said Appendix A.

37. Counterpart Personnel

37.1. The Client shall make available to the Consultant free of charge such professional and support counterpart personnel, to be nominated by the Client with the Consultant's advice, if specified in Appendix A.

37.2. Professional and support counterpart personnel, excluding Client's liaison personnel, shall work under the exclusive direction of the Consultant. If any member of the counterpart personnel fails to perform adequately any work assigned to such member by the Consultant that is consistent with the position occupied by such member, the Consultant may request the replacement of such member, and the Client shall not unreasonably refuse to act upon such request.





38. Payment Obligation

38.1. In consideration of the Services performed by the Consultant under this Contract, the Client shall make such payments to the Consultant for the deliverables specified in **Appendix A** and in such manner as is provided by GCC F below.

F. PAYMENTS TO THE CONSULTANT

39. Contract Price

39.1. The Contract price is fixed and is set forth in the **SCC**. The Contract price breakdown is provided in **Appendix C**.

39.2. Any change to the Contract price specified in Clause GCC 39.1 can be made only if the Parties have agreed to the revised scope of Services pursuant to Clause GCC 16 and have amended in writing the Terms of Reference in **Appendix A**.

40. Taxes and Duties

40.1. The Consultant, Sub-consultants and Experts are responsible for meeting any and all tax liabilities arising out of the Contract unless it is stated otherwise in the **SCC**.

40.2. As an exception to the above and as stated in the **SCC**, all local identifiable indirect taxes (itemized and finalized at Contract negotiations) are reimbursed to the Consultant or are paid by the Client on behalf of the Consultant.

41. Currency of Payment

41.1. Any payment under this Contract shall be made in the currency (ies) of the Contract.

42. Mode of Billing and Payment

42.1. The total payments under this Contract shall not exceed the Contract price set forth in Clause GCC 39.1.

42.2. The payments under this Contract shall be made in lump-sum instalments against deliverables specified in **Appendix A**. The payments will be made according to the payment schedule stated in the **SCC**.

42.2.1 Advance payment: Unless otherwise indicated in the **SCC**, an advance payment shall be made against an advance payment bank guarantee acceptable to the Client in an amount (or amounts) and in a currency (or currencies) specified in the **SCC**. Such guarantee (i) is to remain effective until the advance payment has been fully set off, and (ii) is to be in the form set forth in **Appendix D**, or in such other form as the Client shall have approved in writing. The advance payments will be set off by the Client in equal portions against the lump-sum installments specified in the **SCC** until said advance payments have been fully set off.





42.2.2 *The Lump-Sum Installment Payments.* The Client shall pay the Consultant within sixty (60) days after the receipt by the Client of the deliverable(s) and the cover invoice for the related lump-sum installment payment. The payment can be withheld if the Client does not approve the submitted deliverable(s) as satisfactory in which case the Client shall provide comments to the Consultant within the same sixty (60) days period. The Consultant shall thereupon promptly make any necessary corrections, and thereafter the foregoing process shall be repeated.

42.2.3 *The Final Payment.* The final payment under this Clause shall be made only after the final report have been submitted by the Consultant and approved as satisfactory by the Client. The Services shall then be deemed completed and finally accepted by the Client. The last lump-sum installment shall be deemed approved for payment by the Client within ninety (90) calendar days after receipt of the final report by the Client unless the Client, within such ninety (90) calendar day period, gives written notice to the Consultant specifying in detail deficiencies in the Services, the final report. The Consultant shall thereupon promptly make any necessary corrections, and thereafter the foregoing process shall be repeated.

42.2.4 All payments under this Contract shall be made to the accounts of the Consultant specified in the SCC.

42.2.5 With the exception of the final payment under 42.2.3 above, payments do not constitute acceptance of the whole Services nor relieve the Consultant of any obligations hereunder.

43. Interest on Delayed Payments

43.1. If the Client had delayed payments beyond fifteen (15) days after the due date stated in Clause GCC 42.2.2, interest shall be paid to the Consultant on any amount due by, not paid on, such due date for each day of delay at the annual rate stated in the SCC.

G. FAIRNESS AND GOOD FAITH

44. Good Faith

44.1. The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

H. SETTLEMENT OF DISPUTES

45. Amicable

45.1. The Parties shall seek to resolve any dispute amicably by



**Settlement**

mutual consultation.

45.2. If either Party objects to any action or inaction of the other Party, the objecting Party may file a written Notice of Dispute to the other Party providing in detail the basis of the dispute. The Party receiving the Notice of Dispute will consider it and respond in writing within fourteen (14) days after receipt. If that Party fails to respond within fourteen (14) days, or the dispute cannot be amicably settled within fourteen (14) days following the response of that Party, Clause GCC 46.1 shall apply.

46. Dispute Resolution

46.1. Any dispute between the Parties arising under or related to this Contract that cannot be settled amicably may be referred to by either Party to the adjudication/arbitration in accordance with the provisions specified in the SCC.





II. General Conditions

Attachment 1

Fraud and Corruption

(Text in this Attachment shall not be modified)

1. Purpose

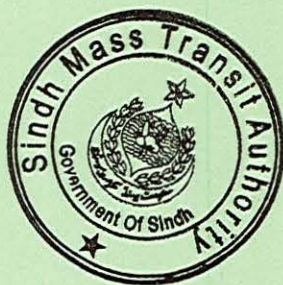
- 1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

2. Requirements

- 2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

- 2.2 To this end, the Bank:

- a. Defines, for the purposes of this provision, the terms set forth below as follows:
- i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
 - iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
 - iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - v. "obstructive practice" is:
 - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - (b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.





- b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- d. Pursuant to the Bank's Anti- Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;¹ (ii) to be a nominated² sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
- e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect³ all accounts, records and other documents relating to the procurement process, selection and/or contract execution,, and to have them audited by auditors appointed by the Bank.

¹ For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

² A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

³ Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.





III. Special Conditions of Contract (Phase 1)

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.1(a)	The Contract shall be construed in accordance with the law of Islamic Republic of Pakistan .
4.1	The language is: English
6.1 and 6.2	<p>The addresses are:</p> <p>Client: Sindh Mass Transit Authority, Government of Sindh House # D-43; Block 2; Scheme No.5; Kehkashan, Clifton. Karachi, Pakistan Attention: Project Director (Karachi Mobility Project) E-mail: kmp.infra.smta@gmail.com pd.kmp.ylc@gmail.com</p> <p>Consultant : M/s Dar-Al-Handasah Consultants (Shair & Partners) in JV with M/s National Engineering Services Pakistan Pvt. Limited</p> <p>Attention : Bassam Shakhshir, Director of Operations Facsimile : +97317533583 E-mail (where permitted) : manama@dar.com Address: Wind Tower, Office 81, Building 403, Road 1705, Manama 317, P.O.Box: 5491, Kingdom of Bahrain.</p>
8.1	The Lead Member on behalf of the JV is M/s Dar Al Handasah Consultants (Shair & Partners).
9.1	<p>The Authorized Representatives are:</p> <p>For the Client: Project Director (Karachi Mobility Project)</p> <p>For the Consultant: Mr. Bassam Shakhshir, Director of Operations</p>
11.1	<p>The effectiveness conditions are the following:</p> <p>Signature of the contract by both parties.</p>
12.1	<p>Termination of Contract for Failure to Become Effective:</p> <p>The time period shall be six (06) months.</p>
13.1	<p>Commencement of Services: For Phase 1 (Detailed Design & Procurement Support)</p> <p>The number of days shall be <u>15 days</u> after the Contract effectiveness. Confirmation of Key Experts' availability to start the Services shall be submitted to the Client in writing as a written statement signed by each Key Expert.</p>





14.1	Expiration of Contract: The time period shall be <u>12 months</u>
21 b.	The Client reserves the right to determine on a case-by-case basis whether the Consultant should be disqualified from providing goods, works or non-consulting services due to a conflict of a nature described in Clause GCC 21.1.3 Yes
23.1	The following limitation of the Consultant's Liability towards the Client can be subject to the Contract's negotiations: "Limitation of the Consultant's Liability towards the Client: (a) Except in the case of gross negligence or willful misconduct on the part of the Consultant or on the part of any person or a firm acting on behalf of the Consultant in carrying out the Services, the Consultant, with respect to damage caused by the Consultant to the Client's property, shall not be liable to the Client: (i) for any indirect or consequential loss or damage; and (ii) for any direct loss or damage that exceeds <i>1.5</i> times the total value of the Contract; (b) This limitation of liability shall <i>not</i> (i) affect the Consultant's liability, if any, for damage to Third Parties caused by the Consultant or any person or firm acting on behalf of the Consultant in carrying out the Services; (ii) be construed as providing the Consultant with any limitation or exclusion from liability which is prohibited by the "Applicable Law"





24.1	<p>The insurance coverage against the risks shall be as follows:</p> <ul style="list-style-type: none"> (a) Professional liability insurance, with a minimum coverage of the 1.5 times of the value of the contract i.e. <ul style="list-style-type: none"> i) USD 3,893,116/= (USD Three Million Eight Hundred Ninety Three Thousand One Hundred Sixteen only) ii) PKR 278,754,248/= (PKR Two Hundred Seventy Eight Million Seven Hundred Fifty Four Thousand Two Hundred Forty Eight only) and claimable in <i>Islamic Republic of Pakistan</i>. (b) Third Party motor vehicle liability insurance in respect of motor vehicles operated in the Client's country by the Consultant or its Experts or Sub-consultants, with a minimum coverage of USD 100,000; (c) Third Party liability insurance, with a minimum coverage of USD 100,000; (d) Employer's Liability and workers' compensation insurance in respect of the experts and Sub-consultants in accordance with the relevant provisions of the applicable law in the Client's country, as well as, with respect to such Experts, any such life, health, accident, travel or other insurance as may be appropriate; and (e) Insurance against loss of or damage to (i) equipment purchased in whole or in part with funds provided under this Contract, (ii) the Consultant's property used in the performance of the Services, and (iii) any documents prepared by the Consultant in the performance of the Services. <p><u>Copy of the above insurance policy shall be submitted to the Client within 30 days after the Effective Date of this Contract.</u></p>
27.2	The Consultant shall not use these documents for purposes unrelated to this Contract without the prior written approval of the Client.
29. Code of Conduct	The Consultant is required to have a Code of Conduct for Experts (ES).
32. Removal of Experts or Sub-consultants	<p>Insert the following as Sub-Paragraph 32.3 and renumber original Sub-Paragraphs 32.3 and 32.4 as 32.4 and 32.5 respectively.</p> <p>"32.3 Experts or Sub-consultants who are found to be in breach of the Consultant's Code of Conduct (ES) (including on sexual harassment, sexual exploitation and sexual abuse) shall be immediately replaced by the Consultant, or at the Client's written request."</p>





39.1	<p>The Contract price is:</p> <p>i) USD 2,022,135 /= (USD Two Million Twenty Two Thousand One Hundred Thirty-Five only)</p> <p>ii) PKR 163,948,977/= (PKR One Hundred Sixty-Three Million Nine Hundred Forty Eight Thousand Nine Hundred Seventy Seven only)</p> <p>Exclusive of all local indirect taxes and withholding tax for non-resident Experts.</p> <p>The amount of such taxes is as follows:</p> <p>VAT (13%)</p> <p>USD 262,878/= (USD Two Hundred Sixty Two Thousand Eight Hundred Seventy-Eight only)</p> <p>PKR 21,313,367/= (PKR Twenty One Million Three Hundred Thirteen Thousand Three Hundred Sixty Seven only)</p> <p>Stamp Duty Fee (0.35%)</p> <p>USD 7,077/= (USD Seven Thousand Seventy Seven only)</p> <p>PKR 573,821/= (PKR Five Hundred Seventy Three Thousand Eight Hundred Twenty One only)</p> <p>Withholding Tax (15%) – For Non Resident Experts</p> <p>USD 303,320/= (USD Three Hundred Three Thousand Three Hundred Twenty only)</p> <p>The Contract price inclusive of all local indirect taxes:</p> <p>i) USD 2,595,410/= (USD Two Million Five Hundred Ninety Five Thousand Four Hundred Ten only)</p> <p>ii) PKR 185,836,166 /= (PKR One Hundred Eighty Five Million Eight Hundred Thirty Six Thousand One Hundred Sixty Six only)</p>
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40.1 and 40.2	<p>“the Consultant, Sub-consultants and the Experts shall bear such direct taxes, duties, fees, levies and other impositions imposed, as agreed between the parties, under the applicable law in the Client’s country, on the Consultant, the Sub-consultants and the Experts in respect of:</p> <ul style="list-style-type: none">(a) any payments whatsoever made to the Consultant, Sub-consultants and the Experts, in connection with the carrying out of the Services;(b) any equipment, materials and supplies brought into the Client’s country by the Consultant or Sub-consultants for the purpose of carrying out the Services and which, after having been brought into such territories, will be subsequently withdrawn by them;(c) any equipment imported for the purpose of carrying out the Services and paid for out of funds provided by the Client and which is treated as property of the Client;(d) any property brought into the Client’s country by the Consultant, any Sub-consultants or the Experts, or the eligible dependents of such experts for their personal use and which will subsequently be withdrawn by them upon their respective departure from the Client’s country, provided that:<ul style="list-style-type: none">(i) the Consultant, Sub-consultants and experts shall follow the usual customs procedures of the Client’s country in importing property into the Client’s country; and <p>if the Consultant, Sub-consultants or Experts do not withdraw but dispose of any property in the Client’s country upon which customs duties and taxes have been exempted, the Consultant, Sub-consultants or Experts, as the case may be, (a) shall bear such customs duties and taxes in conformity with the regulations of the Client’s country, or (b) shall reimburse them to the Client if they were paid by the Client at the time the property in question was brought into the Client’s country.</p> <p>The Client shall bear all the indirect taxes.</p>
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42.2

The payment schedule:

The Payment Schedule for Phase 1 contract, according to the following percentage of the Contract Price against respective deliverables, as noted below:

S. No.	Deliverables	% of Contract Price
1	Inception Report (10%)	
	Approval of the Final Inception Report	10%
2	Interim Report – Supporting Studies and Analysis (20%)	
a	Approval of the following Final Reports: i) Topographic Report ii) Residual Pavement Strength Survey iii) Structural Condition Survey iv) Geotechnical Survey and Investigations	10%
b	Approval of the following Final Reports i) Traffic Engineering Study ii) Parking Study iii) Hydrological Study iv) Utility Survey	10%
3	Detailed Designs (35%)	
a	Package 1 and Package 2 – Depot 1 and 2	6%
b	Package 3 – BRT Corridor (Segment 0,1,2)	12%
c	Package 5 – BRT Corridor (Segment 4,5,6,7)	12%
d	Package 6 – Off Corridor Improvement	5%
4	Approval of Bidding Documents and Procurement Support Services (25%)	
a	Packages 1 and 2 – Depot 1 and 2 (NCB)	4%
b	Package 4 – One Km long Bridge (Seg 3) (ICB)	5%
c	Package 3 – BRT Corridor (Seg 0,1,2) (ICB)	6%
d	Package 5– BRT Corridor (Seg 4,5,6,7) (ICB)	6%
e	Off Corridor Improvement (NCB)	4%
5	Design Review Report for Package 4 (10%)	
	Approval of Final Detailed Design Review Report for Package 4	10%
	TOTAL	100%



Handwritten signature





42.2.1	<p>The following provisions shall apply to the advance payment and the advance bank payment guarantee:</p> <p>(1) An advance payment of upto 10% of the Phase 1 contract price shall be made within 30 days, of the start of Phase 1, against a Bank guarantee acceptable to the Client.</p> <p>The advance payment will be set off by the Client in equal installments of 12% against the invoices submitted for the Phase 1 of the Services until the advance payment has been fully set off.</p> <p>(2) The advance bank payment guarantee shall be in <u>the amount and in the currency of the currency(ies)</u> of the advance payment.</p>
42.2.2	<p>The Lump-Sum Installment Payments:</p> <p>Replace the words “sixty (60) days” with “forty two (42) days” wherever mentioned in this sub-clause.</p>
42.2.3	<p>The Final Payment:</p> <p>Replace the words “ninety (90) days” with “sixty (60) days” wherever mentioned in this sub-clause.</p>





42.2.4	<p>The accounts are:</p> <p>for foreign currency:</p> <table border="1"><tr><td>Bank Name</td><td>Arab Bank plc, Bahrain</td></tr><tr><td>Bank Address</td><td>Building 540/542, Diplomatic Area, Road 1706 Manama, Block 317 Kingdom of Bahrain</td></tr><tr><td>Account Name</td><td>Dar AlHandasah Consultants Shair & Partners B.S.C. closed</td></tr><tr><td>Account No.</td><td>2002-680294-511</td></tr><tr><td>Swift Code</td><td>ARABHBMXXX</td></tr><tr><td>IBAN #</td><td>BH94 ARAB 0200 2680 2945 11</td></tr></table> <p>for local currency:</p> <table border="1"><tr><td>Name of Bank</td><td>National Bank of Pakistan (NBP)</td></tr><tr><td>Name of Branch</td><td>PNSC Branch</td></tr><tr><td>Name of Beneficiary</td><td>National Engineering Services Pakistan (Pvt.) Ltd.</td></tr><tr><td>Account No.</td><td>3000312779</td></tr><tr><td>Branch Code</td><td>0250</td></tr><tr><td>IBAN #</td><td>PK61NBPA0250003000312779</td></tr></table>	Bank Name	Arab Bank plc, Bahrain	Bank Address	Building 540/542, Diplomatic Area, Road 1706 Manama, Block 317 Kingdom of Bahrain	Account Name	Dar AlHandasah Consultants Shair & Partners B.S.C. closed	Account No.	2002-680294-511	Swift Code	ARABHBMXXX	IBAN #	BH94 ARAB 0200 2680 2945 11	Name of Bank	National Bank of Pakistan (NBP)	Name of Branch	PNSC Branch	Name of Beneficiary	National Engineering Services Pakistan (Pvt.) Ltd.	Account No.	3000312779	Branch Code	0250	IBAN #	PK61NBPA0250003000312779
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43.1	<p>The interest rate is: 1% annual rate</p>																								



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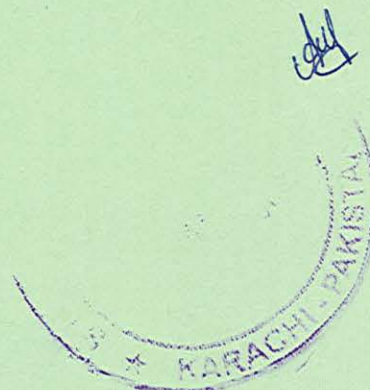




46.1

Disputes shall be settled by arbitration in accordance with the following provisions:

1. Selection of Arbitrators. Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel composed of three (3) arbitrators, in accordance with the following provisions:
 - (a) Where the Parties agree that the dispute concerns a technical matter, they may agree to appoint a sole arbitrator or, failing agreement on the identity of such sole arbitrator within thirty (30) days after receipt by the other Party of the proposal of a name for such an appointment by the Party who initiated the proceedings, either Party may apply to the Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland for a list of not fewer than five (5) nominees and, on receipt of such list, the Parties shall alternately strike names therefrom, and the last remaining nominee on the list shall be the sole arbitrator for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) days of the date of the list, the Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland shall appoint, upon the request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute.
 - (b) Where the Parties do not agree that the dispute concerns a technical matter, the Client and the Consultant shall each appoint one (1) arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the arbitrators named by the Parties do not succeed in appointing a third arbitrator within thirty (30) days after the latter of the two (2) arbitrators named by the Parties has been appointed, the third arbitrator shall, at the request of either Party, be appointed by the International Chamber of Commerce, Paris.
 - (c) If, in a dispute subject to paragraph (b) above, one Party fails to appoint its arbitrator within thirty (30) days after the other Party has appointed its arbitrator, the Party which has named an arbitrator may apply to the International Chamber of Commerce, Paris to appoint a sole arbitrator for the matter in dispute, and the arbitrator appointed pursuant to such application shall be the sole arbitrator for that dispute.



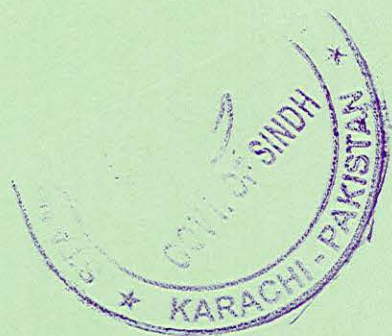


	<p>2. <u>Rules of Procedure.</u> Except as otherwise stated herein, arbitration proceedings shall be conducted in accordance with the rules of procedure for arbitration of the United Nations Commission on International Trade Law (UNCITRAL) as in force on the date of this Contract.</p> <p>3. <u>Substitute Arbitrators.</u> If for any reason an arbitrator is unable to perform his/her function, a substitute shall be appointed in the same manner as the original arbitrator.</p> <p>4. <u>Nationality and Qualifications of Arbitrators.</u> The sole arbitrator or the third arbitrator appointed pursuant to paragraphs 1(a) through 1(c) above shall be an internationally recognized legal or technical expert with extensive experience in relation to the matter in dispute and shall not be a national of the Consultant's home country or of the home country of any of their members or Parties or of the Government's country. For the purposes of this Clause, "home country" means any of:</p> <ul style="list-style-type: none">(a) the country of incorporation of the Consultant or of any of their members or Parties; or(b) the country in which the Consultant's or any of their members' or Parties' principal place of business is located; or(c) the country of nationality of a majority of the Consultant's or of any members' or Parties' shareholders; or(d) the country of nationality of the Sub-consultants concerned, where the dispute involves a subcontract.
	<p>5. <u>Miscellaneous.</u> In any arbitration proceeding hereunder:</p> <ul style="list-style-type: none">(a) proceedings shall, unless otherwise agreed by the Parties, be held in Paris or other neutral venue agreed by the parties.(b) the English language shall be the official language for all purposes; and(c) the decision of the sole arbitrator or of a majority of the arbitrators (or of the third arbitrator if there is no such majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.





IV. Appendices





APPENDIX A – TERMS OF REFERENCE



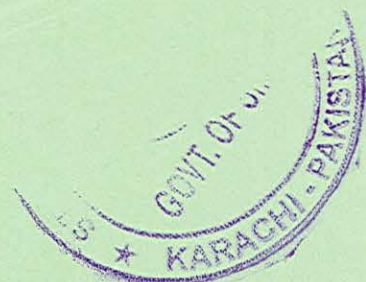
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The Final Terms of Reference (TORs)

1

The final Terms of Reference (TORs)





The Final Terms of Reference (TORs)

BACKGROUND

The implementation of a comprehensive solution to Karachi's severe urban mobility problems is underway through decisive Federal and Provincial Governments engagement towards the implementation of a Bus Rapid Transit System (BRTS) as planned under the Karachi Urban Transport Master Plan of 2030. As of 2018, the BRTS implementation efforts in the city, spearheaded by the Federal Government, Government of Sindh (GoS), and the Sindh Mass Transit Authority (SMTA), were focused on: (i) completion of roadworks and associated facilities, and selection of an operator for BRTS operation and maintenance for the Green/Orange Corridor; (ii) continuation and follow-up of contracts for planning, detail engineering design, and business plan definition for the Red Corridor; and (iii) elaboration/update of preliminary design and feasibility studies for Yellow BRT Corridor.

The GoS, SMTA and the World Bank (WB) are committed to financing the infrastructure and structuring the operation and business model for the Yellow BRT Corridor, using a mix of financing instruments to maximize the available funding for the development and operation of the BRTS, through the Karachi Mobility Project (KMP). The KMP follows the integrated corridor management approach aiming to improve the needs of all road users along the corridor (mobility, accessibility, safety). Severely deteriorated road sections along the Yellow BRT Corridor and catchment areas will be improved, traffic management will be upgraded, and parking issues will be addressed. It is estimated that more than 700,000 people will benefit from this project, particularly people living and working along the Korangi industrial area.

In order to support execution of the infrastructure component of the KMP, the SMTA and its Project Management Team (PMT) (hereinafter referred to as "the Client" or "the Employer", as relevant) wishes to engage a qualified consulting firm (hereinafter referred to as "the Consultant") to undertake preparation of Detailed Design, provide procurement assistance, construction supervision, contract administration (in the capacity of the Engineer), and provide support in monitoring and ensuring environmental and social (E&S) safeguard (SG) compliance.

DESCRIPTION OF YELLOW BRT CORRIDOR

The Yellow BRT Corridor is approximately 21 km long, starting from Dawood Chowrangi to Numaish, and is part of the overall planned Karachi Mass Transit System (KMTS). Its segments are presented in Table 1 and Figure 2 however the Yellow BRT system will also comprise two bus depots (near Dawood Chowrangi and near Indus Hospital). There are also approximately 65 km of complementary feeder roads (hereinafter referred to as "off-corridors") which would be improved as part of the Yellow BRT Corridor development project (Figure 1).





Figure 1 Planned mass transit corridors

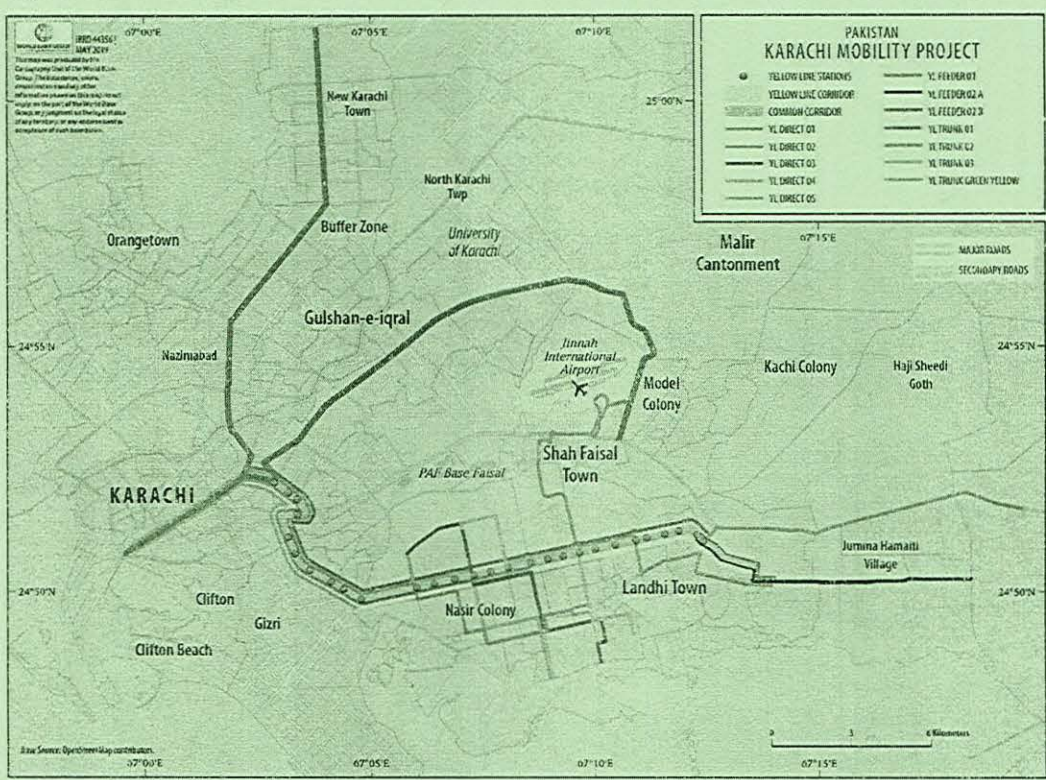


Table 1 Yellow BRT Corridor segments

Segment		Length [km]
0	Dawood Chowrangi - from bus depot entrance to Dawood Chowrangi	0.3
1	Future Colony - from Dawood Chowrangi terminal to Mansehra Colony	1.15
2	8000 Road - from Mansehra Colony to Malir River bridge (Jam Sadiq)	10.65
3	Malir River bridge (Jam Sadiq)	1.1
4	KPT interchange	0.85
5	Korangi Road - from KPT Interchange to Shahrah-e-Faisal Interchange	3.9
6	Shahrah-e-Faisal - from Shahrah-e-Faisal Interchange to Shahrah-e-Qaideen	1.65
7	Shahrah-e-Qaideen - from Shahrah-e-Faisal to M.A. Jinnah Road	1.4
Total:		21.0





Figure 2 Yellow BRT Corridor segments



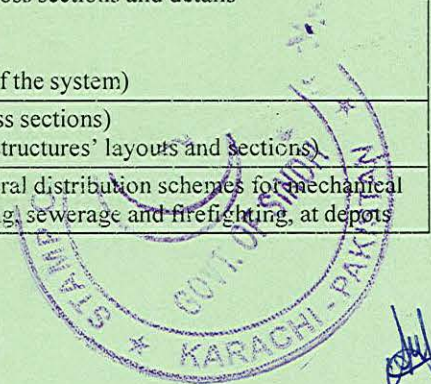
PRELIMINARY DESIGN

Preliminary Design for the Yellow BRT Corridor has been first prepared in 2014 and then further updated in 2019. During Preliminary Design preparation, mapping of existing road conditions and utilities was performed along the corridor. Also, traffic simulations were carried out at selected junctions. Content of the Preliminary Design drawings is summarized in *Table 2*. These were also accompanied by relevant technical documentation and cost estimates. Drawings are presented in the scale generally appropriate for Preliminary Designs in urban conditions, namely:

- 1:500 for general horizontal alignment and overall layout;
- 1:200 for vertical alignment;
- 1:200 for on stations sites, restructured junctions, and proposed elevated or underground sections;
- 1:50 for relevant details at sidewalks, stairways, pedestrian crossings, station arrangements, passenger shelters, structures, utilities.

Table 2 Summary of the Preliminary Design drawings

Volume	Title	Drawings
I	Infrastructure works	General drawings Topographic survey Layout plan, including typical cross sections and details Existing utilities Depots' typical details Storm water drainage (concept of the system)
II	Architecture and structural works	Stations (typical layouts and cross sections) Depots (master plan layout and structures' layouts and sections)
III	Mechanical, electrical and plumbing works	Layouts, typical details and general distribution schemes for mechanical works, electrical works, plumbing, sewerage and firefighting, at depots





The following cost components are included in the cost estimate:

- Civil road works (e.g. pavements, delineators, curbs, drainage system);
- Stations (e.g. entrance, kiosk, platform, alignment curbs, shutters, doorways, ceiling, lighting, roof, etc.);
- Bus shelters;
- Traffic signals and traffic management system;
- Road markings and signage;
- Street lighting and urban furniture;
- Utility connections to stations (e.g. water, electricity, telecommunications, sewerage);
- Depot facilities;
- Integration facilities (e.g. universally accessible pedestrian facilities, bicycle parking, pedicab and taxi integration facilities, park-and-ride facilities);
- Intelligent transport system (ITS) (e.g. real-time information displays);
- Fare system equipment (e.g. sales vending, smart cards, validators, gates).

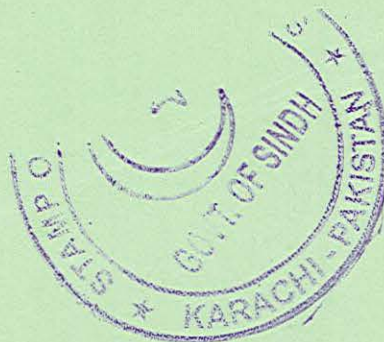
Costing of off-corridor interventions was not estimated in detail through the Preliminary Design.

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

Consistent with the WB Safeguard Policies and provincial regulatory requirements – Sindh Environmental Protection Agency (SEPA) under SEPA 2014 –an Environmental Impact Assessment (EIA), a Social Impact Assessment (SIA), and a Compensation and Livelihood Rehabilitation Plan (CLRP) for KMP in May-2019 have been conducted. These safeguard documents are largely based on the 2019 Preliminary Design for the Yellow BRT Corridor. During Preliminary Design preparation, mapping of existing road conditions and utilities was performed along the corridor. Also, traffic simulations were carried out at selected junctions.

Given the project is now planning to commission detailed project design, changes are expected from the preliminary design proposal. Any change, particularly in crucial parameters such as: realignment of original BRT route, shifting to grade-separated solutions instead of at-grade, relocation of key structures (bus stops, parking areas, depots), and expansion of work scope etc. may trigger additional environmental and social implications including safety issues, all requiring renewed assessment. In addition, possible changes in socio-economic context that might have emerged/evolved over time since the preliminary design was completed may require environmental and social assessment afresh. Notwithstanding, the environmental and social assessment also highlights the study limitations and suggests further addition¹/(revision) under such backdrop.

¹ KMP ESIA-Section 1.7 Page-38.





OBJECTIVE OF THE ASSIGNMENT

Objectives of these consulting services are to:

1. Prepare Detailed Design on the basis of the available Preliminary Design results and recommendations, including the element of the *Value Engineering* (predominantly in terms of materials selection, optimization of pavement structures, systematization of structures and components, and technology) to determine if better cost-effective alternatives are viable, however without compromising the quality and functionality of the infrastructure along the Yellow BRT Corridor and off-corridors;
2. Assist the Client in preparation of Employer's requirements for 1 km long bridge, by thoroughly reviewing the available Preliminary Design and deciding on the extent of information to be added in the Employer's requirements so that excess of information does not provide basis for the contractor to absolve from the responsibility of the design and sufficiency of the contract price;
3. Assess the environmental and social safeguard requirements emerged/evolved during detailed design and assist the Client to integrate them in the draft EIA, SIA and CLRP to finalize (as detailed in E&S sections below).
4. Support PMT in the implementation of the project in an environmentally and socially safe and sustainable manner. To undertake capacity building of the PMT
5. Assist the Client in preparation of bidding documents for construction contracts;
6. Provide necessary procurement and technical assistance including environmental and social safeguards to the Client during the bidding processes including, but not limited to, attending the pre-selection and pre-bid meetings, evaluation of bids, and contract award and signing;
7. Supervise the works to ensure that the executed works comply with the approved design, internationally acceptable technical specifications, environmental and social safeguards and sound engineering practice;
8. Prepare final construction reports and compile full set of as-built drawings of all completed works, as well as full set of documents for entry into cadaster books/records;
9. Support the use of Building Information Modeling (BIM) for constructing the whole of the asset digitally and using this model to support all stakeholders during the complete lifecycle of the project.





SCOPE OF ASSIGNMENT

The scope of services, grouped in two phases, consist of the following major tasks:

Phase 1: DESIGN (*Services under this lump-sum Contract*)

1. Task 1 ☐ Preparation of Detailed Designs;
2. Task 2 ☐ Preparation of Bidding Documents for Contractor Selection;

Phase 2: SUPERVISION (*separately contracted through a separate time based contract*)

3. Task 3 ☐ Construction Supervision and Contracts Administration, including post-construction activities.

TASK 1 – PREPARATION OF DETAILED DESIGNS

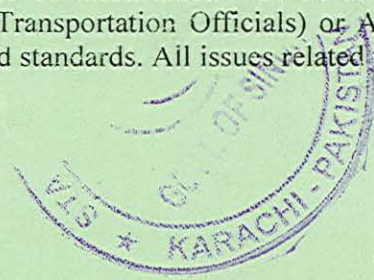
The Preliminary Design and a BRT Operational Plan have already been carried out for the Yellow BRT Corridor. The Consultant shall carry out an in-depth review of both with special emphasis on mobility, accessibility, safety, Value Engineering, suggest and incorporate improvements, if any, in the detailed designs. The review must include but not limited to:

1. Be carried out to verify the most cost-effective solution considering local conditions, good international BRT design and operational practices, and lessons learnt from similar projects in Pakistan² and international have been adopted/implemented before to the elaboration of the Detailed Design Package.
2. Cover the design criteria which were developed during the Preliminary Design stages and prepare a harmonized KMTS BRT Design Framework. Any suggested improvements will be discussed and agreed with the Client during the inception stage of the services and will become the part of Inception Report. The Consultant shall ensure that all the agencies are clear and in agreement on the Design Framework for the preparation of the Detailed Design and that consistent design standards are used.

The main purpose of the Detailed Design is to: (i) provide sufficient detail for preparation of bidding documents and execution of works and (ii) be prepared in accordance with environmental and social safeguards documentation.

The Detailed Design drawings are to contain sufficient details to permit contractors to carry out construction work effectively, unambiguously and with highest standards of quality, consistent with environmental and social safeguards documentation. It is expected for the outputs to be supported by relevant reports, calculations and specifications.

The Consultant must follow relevant Pakistani legislation, technical regulations and specifications to develop the Detailed Design. In case that certain elements are not regulated through the relevant Pakistani documents, primary source of information will be relevant AASHTO (American Association of State Highway and Transportation Officials) or ASTM (American Society for Testing and Materials) guidelines and standards. All issues related to the





utilization of legislation, technical regulations and specifications will be resolved during the inception stage of the services.

The Consultant's attention is specifically drawn to the fact that the preparation of the Detailed Design for the Yellow BRT Corridor and complementary off-corridors *must run in parallel* so there will be a need for adequate capacity to prepare designs and bidding documents within the required time.

² Parallel design criteria have been used in other BRT corridors implemented or in the course of implementation within the Karachi Metropolitan Area, namely Green and Red BRT Corridors and operational systems in Punjab.





Universal Access Design Premise: The Consultant must apply universal access design principles and guidelines throughout all aspects of the detail design of the BRT infrastructure and the associated facilities proposed by the project. Important features enabling inclusiveness for all, particularly those living with a disability and/or limited mobility that will be incorporated include those related to (i) urban transport system accessibility; (ii) prioritization of Non-Motorized Transport (NMT) in terms of provision of adequate space and safety; and (iii) geometric design as a traffic calming passive measure. The design of access to the stations will be subject to a safety assessment to verify the optimal nature of the infrastructure built; in general, the Safe Systems approach

Recommendations from Preliminary Design Stage

Background:

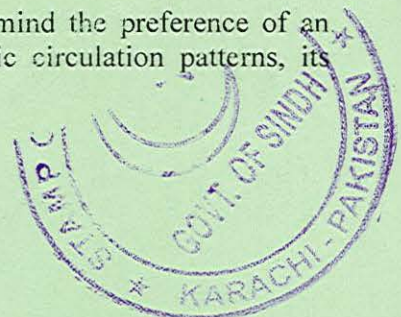
The Preliminary Design update was streamlined with the objective of offsetting these time-consuming tasks to detail design phases. Some of these include GT investigations, hydro-geological survey, traffic analysis along the corridor including all intersections, pedestrian access study and parking study, among others.

A Road Safety Audit (RSA) was completed as part of the preliminary design stage. Its findings and recommendations were catered for at the preliminary design stage. Similarly, some recommendations were offset as well to be incorporated in the detail design.

Recommendations:

Following the completion of preliminary designs, the main concern related to the comprehensiveness reached by the traffic analysis and the intersection design supported by it. Consequently, the following facts have been highlighted as key to consider when developing the detailed design aspects on intersection, signaling, and traffic management. Important aspects and facts relevant to the preparation of detailed designs are:

1. Preliminary traffic analysis was carried out at selected intersections based on limited data either previously collected and made available to the design team or collected at preliminary stages. A full-fledged traffic analysis needs to be conducted along the corridor to either validate the solutions presented in the preliminary design and/or determine the need, depth and level required to carry out a technical update or revision. Important aspects to note:
2. It is to be kept in mind that the preliminary design was developed under the premise of maintaining at-grade solutions as the preferred option while prioritizing the improvement of BRT system's level of service.
3. At specific sites where at-grade solutions could not be implemented, grade-separated solutions were recommended.
4. Given the time and budget constraints, sites where existing conditions required the implementation of complex solutions were not studied at the detail and technical depth required (e.g. Tariq Road, KPT interchange). This task is pending and needs to be carried out at detailed design phase.
5. The impact of a comprehensive traffic analysis, keeping in mind the preference of an at-grade solution, needs to be reassessed by revisiting traffic circulation patterns, its impact on side / cross roads, and road geometry changes.





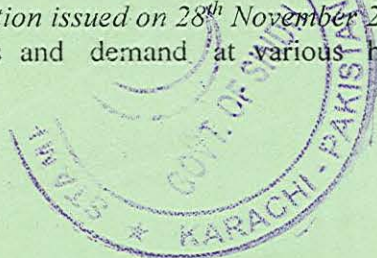
6. Traffic signal optimization / phasing will be dependent upon the final intersection geometry and functional design.
7. Various options were considered to enable at-grade intersections to operate at an acceptable LOS. This was achieved by, primarily, banning all right-turn movements and rerouting them through cross roads (Michigan left-turn solution) for which side road geometry will need to be more closely looked at. This situation is more pronounced along 8000 Road where grade-separated solutions have been recommended as the preferred option.
8. Similarly, specific solutions to be studied are the rerouting of traffic “around the block” to reduce traffic volumes and right-turning movements at the main intersections along the project.
9. A comprehensive traffic signal phasing plan will need to be developed in conjunction with the geometric improvements to allow for at-grade solutions, if possible.
10. The mitigation measures proposed in the EIA and SIA for the design stage consideration should be reviewed and integrated in the detailed design.

Additional recommendations for detailed design are the following:

1. Traffic movements on Tariq Road intersection and Khalid Bin Waleed Road intersection, along Shahrah-e-Qaideen Road, should especially be evaluated during the detail design phase. A Traffic Circulation Plan comprising these two intersections should be prepared and evaluated. At Tariq Road intersection, analysis of the existing traffic data shows that even after grade-separating the BRT flows, the at-grade traffic experiences significant delays. This will need to be looked at in a holistic manner to find solutions to improve the LOS and reduce delays at this intersection, while remaining within budget and aligned with the design premises established for the project.
2. KPT interchange stands as one of the most critical junctions along the corridor with five-legs merging at a large elliptical roundabout. The preliminary design envisages BRT buses running at-grade, cutting through the roundabout with stations proposed opposite Imtiaz Superstore. The BRT lanes crossing into the roundabout will require signalized operations. It is recommended that a detailed study be conducted to evaluate options for maneuvering KPT Interchange roundabout.
3. Traffic rerouting at Korangi Road/South Avenue intersection, as proposed in the preliminary design, needs to be further streamlined during the detailed design phase.
4. The preliminary design shows the location of traffic signals (vehicular and pedestrian). However, a detailed traffic signal plan along with signal timing plan (including pedestrian signal heads for BRT operation, mix traffic, merging of feeder service and others throughout the corridor) will need to be developed once the detail design is finalized and supported by a comprehensive traffic analysis.
5. No information regarding pedestrian accessibility was available during the preliminary design. Several signalized or protected at-grade pedestrian crossings have been included as part of the preliminary design. Detailed pedestrian accessibility analysis is recommended to be performed during the detailed design as part of a larger station area planning analysis (*the accessibility analysis should be conducted within 500m of each side of the Yellow corridor, according to the clarification issued on 28th November 2020*). This should provide details on pedestrian flows and demand at various highly

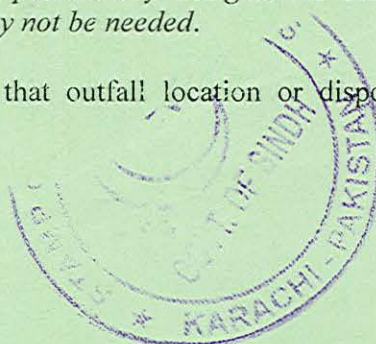


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- frequented locations along the corridor. The results of the same will enable finalizing the location / access of the pedestrians in the detailed design plans.
6. The preliminary design does not include detailed traffic signage plans, although the quantities for the same have been accounted for in the cost estimate. Detailed plans for road lane markings, parking spots, traffic signs and traffic gantries throughout the corridor as per MUTCD / local guidelines are to be included in the detail design.
 7. Parking maneuvers take place all along the corridor at various locations. Along 8000 Road, heavy truck / trailer parking is prevalent on the service roads and on the katcha³ area between the carriageway and Service Road. Similarly, rickshaws / taxis park on the outside lanes in commercial / business areas due to lack of parking opportunities. A parking study is recommended to be performed, and a plan made for the provision of parking facilities to provide the required bays. The regulatory authority would then need to enforce parking regulation especially in the initial period of operation of the new BRTS.
 8. Provision of spaces for feeder/complementary services or passenger drop-off/pick up near many stations will be required (*detailed design needs to be prepared as per the clarification issued on 28th November 2020*). It is very likely that passengers will continue their journey by one of these modes and that there will be high demand for taxis and other informal modes to stop in the mix traffic lanes by the stations to serve BRT passengers. Increased traffic at the station locations will also lead to an increase in vendors and informal business by the stations. This can lead to sidewalk space reduction, traffic congestion and increased crashes. It is recommended that detailed station area planning should be conducted and define space for vendors, amenities and other services including rickshaws, taxis etc.
 9. Motorcycle lanes have been provided in the design, where possible. Adequate measures have been proposed to ensure safety of motorcyclists in the design such as separating the lanes from mix-traffic for safety. It is recommended that a detail study should be conducted for provision of separate motorcycle lane and provide solutions to impediments for its operation throughout the corridor.
 10. Parking spaces for buses have been provided at the depots. However, the circulation plan for BRT buses circulation within Depots and stacking of buses would need to be finalized during the detailed design.
 11. Detailed Geotechnical Investigation and Hydrological Survey should be performed.
 12. Pavement structure (Rigid & Flexible) has been designed on the basis of preliminary geotechnical investigations along the corridor. The same may need to be updated as per detailed Geotechnical Investigation report.
 13. Initial structural evaluation of Jam Sadiq Bridge and Kala Pull were carried out through non-destructive testing using a rebound Schmidt Hammer at randomly selected accessible structural elements of the bridge to get rough idea of strength of concrete. Detailed structural evaluation of Jam Sadiq Bridge and Kala Pull are required for re-strengthening of the deficient structural elements. **Points of Discussion as agreed during the Negotiations:** *The Consultant shall undertake necessary visual checks to determine the condition of the existing FTC bridge as a part of Yellow corridor. Non-Destructive Testing is not included in the Consultant's proposal and if needed shall be dealt separately. It was also discussed that from the preliminary designs, the condition of existing FTC bridge is satisfactory and a NDT may not be needed.*
 14. It must be ensured at the detail design phase that outfall location or disposal point



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(existing drain or nullah) of the pipe discharging the flow generated from underpasses is clear and free from all debris to ensure continuous flow and prevent any accumulation of water in underpass. (according to the clarification issued on 28th November 2020, the consultants need to ensure that the detailed designs of drains and disposal points are adequate and not sub-optimal in size, type, mechanical systems and quality. While the responsibility of their maintenance will not be on consultant but the adequacy of design is to be ensured at the detail design phase)

15. Various utility agencies provided their utility plans and their estimates. The actual location of utilities may yet be different than those shown on the plans. Close coordination with utility agencies will be required during detailed design

³ Areas beyond the project's limits occurring on segments where the available ROW exceeds the width of the proposed interventions.

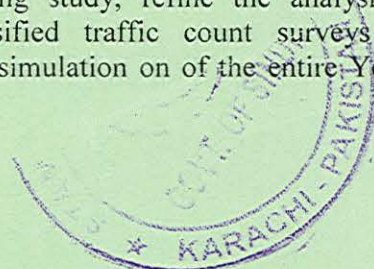
16. All pedestrian access / ramps should have universal accessibility and compliance to ADA guidelines. A typical is included in the preliminary design drawings. The detail design will need to design specific ramps for each type of access.
17. Traffic calming measures such as rumble strips and similar measures increase safety of the pedestrians and motorists alike by reducing operating speeds. The use of rumble strips will be in addition to speed humps. These will be most typically placed where at-grade pedestrian crossings take place.
18. Integration of Yellow BRT Corridor with other mass transit projects such as Karachi Circular Railway and Brown MRT Line is required to be studied during the detail design phase, and the locations of stations may need to be adjusted accordingly. Yellow BRTS crosses KCR at Kala Pull, whereas Brown MRT Line connects with Yellow BRT at Singer Chowrangi.
19. Jam Sadiq bridge should be further studied in conjunction with proposed project of Malir Expressway during the detail design phase.
20. A flyover has been proposed at Dawood Chowrangi by the government, which will need to be dovetailed with the project during the detail design phase.

Supporting Technical Studies and Analyses

Based on the review of the Preliminary Design, and the associated surveys and investigations undertaken, the Consultant shall undertake additional and comprehensive engineering surveys, field investigations and laboratory testing leading to updated technical studies and analyses, including, but not limited to, traffic engineering study (motorized and non-motorized flows including pedestrian), detailed surveys and investigations on utilities, detailed topographic surveys (with DTM of the entire corridor), hydrological, hydro-geological, geotechnical, and condition assessment on existing structures and pavement condition. These additional surveys, investigations, tests and analyses will aim to provide missing or refresh outdated data from the preliminary design phase in order to develop technically correct and comprehensive designs and relevant details.

The consultant shall:

1. Following the review of existing traffic engineering study, refine the analysis by undertaking additional or updating existing classified traffic count surveys and undertake a detailed traffic engineering analysis and simulation on of the entire Yellow



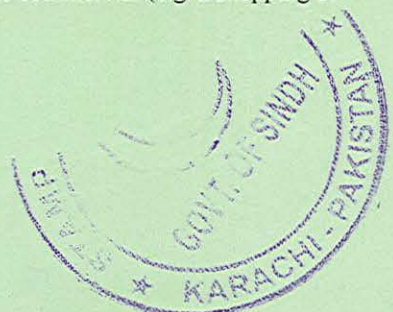


BRT Corridor, specifically to validate the traffic patterns, eventual impacts on congestions, passenger movements, and to anticipate the capacity, level of service, queue lengths, and other traffic parameters at each intersection of the Yellow BRT Corridor. Furthermore, the consultant shall also carry out simulation of depots, integration of feeder routes with BRT, weaving sections for the BRT in mix-traffic, and pedestrian/passenger simulations at major stations. The simulations outputs (traffic parameters, assumptions, data, simulation videos, etc.) shall be submitted by the consultant in a **report on traffic engineering analysis** to the Client for peer review. This shall be performed in conjunction with (i) the proposed Operation Plan of Yellow BRT Corridor and (ii) the Road Safety Audit report prepared during preliminary designs. Data collection shall be carried out on the basis of a 7-day volume and vehicle classifications surveys. Both data capture shall be done during the morning and evening peak hours at intersecting roads/streets.

This shall be performed in conjunction with (i) the proposed Operation Plan of Yellow BRT Corridor and (ii) the Road Safety Audit report prepared during preliminary design. *(as per the clarification issued on 21st December 2020, the traffic analysis should cover 20 years period)*

2. Perform a **Parking Study** to diagnose the existing operating conditions of supply and demand along the Yellow BRT Corridor. The Consultant shall include:
 - a. Inventory and mapping of parking spaces (supply) distinguishing (i) physical location, (ii) vehicle type (motorbike, rickshaw, auto, commercial vehicle, bus, etc.) and (iii) functional classification – on- or off-street determined by location on or off the public roadway, including use of footpaths and open public spaces.⁴
 - b. Parking activity survey to determine how demand for parking varies throughout the workdays and on weekends, how long the vehicles are parked, and how efficiently existing parking spaces are utilized. This survey will differentiate between residents and commuters (including visitors, workers and students) regarding the utilization of on- and off-street parking infrastructure along the study area.
 - c. Parking demand and supply analysis, to determine the level of supply (including, but not limited to, on-street parking bays dimension, rickshaw waiting plazas, etc.) required at the different locations where demand is present (BRT system stations, terminals, depots and other sites where commercial and other community intensive activities are observed) and specific provisions are required as part of the elaboration of physical detailed designs. This analysis should consider traffic growth, impact of new public/mass transit developments and projected land use changes, and sensitivity to pricing and regulatory controls, if any.

⁴ Sub categories include *On-street, free* (with or without regulation) ; *On-street, paid*: any on-street paid parking space, either by formal regulation or informal means; *Informal on-street*: part of paid on-street parking, refers to any parking that has an informal service and/or fee paid to an entity or person who has “taken” the space and watches the vehicles parked there; *Informal on-street, regulated rate*: the service is informal but has a mechanism to establish a standard on-street parking rate; *Off-street (public)*: parking that is located off the public roadway and is available for public use-- may be paid or free and operated by the public or private sector; *Off-street (use- based)*: parking that is primarily linked to specific land-use, such as government, institutional, residential or commercial (e.g. a shopping or office building, park or recreation facility)- may be free or paid.

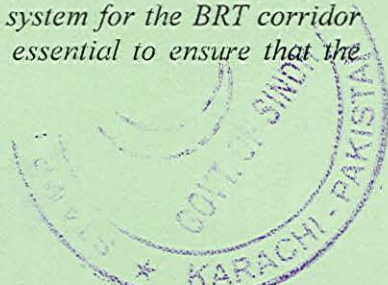




Perform **topographic surveys** along the locations where Yellow BRT corridor's road sections, feeder routes roads, bus depots, stations, bridges and underpasses, drainage structures are being proposed as well as all other necessary elements required to be described within the project's urban environment. As part of this analysis, the Consultant shall prepare base maps and terrain models for the entire project indicating details of all existing topographical features including utilities and water courses. Placement of 'permanent', survey control monuments along both of the routes for use by the Contractor during the construction Stage. Monuments shall be placed at not more than 500 m. intervals and are to be inter-visible. Details of the x, y and z coordinates for each monument are to be reported in a Survey Control Report containing sketches of location and other details including local reference markers used and offset dimensions etc. The detailed requirements for the topographic survey are as follows:

- (i) Horizontal and vertical monuments with reference shall be shown in the plans.
 - (ii) Vertical control monument shall be set at location where it shall not be disturbed during construction.
 - (iii) Level identification shall be tied to the existing benchmarks in the area.
 - (iv) After identification of the alignment centerline, centerline staking at the locations including intersections (P.I), beginning and ending of the horizontal curves (P.O and P.T) shall be tied to permanent references points in accordance with Government of Pakistan (GoP) standard practice.
 - (v) Cross sections shall be taken at 20 meter intervals, unless local conditions require cross section at closer intervals so as to provide the necessary details for the earthwork, quantity calculation with accuracy of five percent (5%) of final quantities
 - (vi) All survey information and data shall be recorded in standard survey notebooks. Upon completion of the works, all survey notes shall become the property of the Client.
3. Undertake additional investigation into the form of **residual pavement strength surveys**, notably: 2 (two) test pits per kilometer and 10 (ten) deflection tests per kilometer. Condition of the existing elements and surfaces at off-corridor sections was not surveyed during the Preliminary Design. It is anticipated that local asphalt overlays would be needed.
 4. The road section from Jam Sadiq Bridge to Dawood Chowrangi (8000 road) was recently rehabilitated. Based on surveys and tests, the Consultant will prepare a **road structure audit** which will assess and propose whether any part or section can be retained in the design.
 5. Undertake **structural condition audit** on several structures present along the BRT corridor to determine their current condition and to propose measures to ensure a service life of forty to fifty years considering the expected loads after the BRT operation starts.
 6. Undertake **detailed study of the existing hydrological regime** which will be based on analysis of historic rainfall and flood records (*the Client will assist in coordination with relevant utility agencies to collect relevant rainfall data as per the clarification issued on 21st December 2020. Also refer clarification# 6 as issued on 21st December 2020*), including subsurface water characteristics supplemented by detailed field investigations. The consultant shall propose modifications in structures [embankments, culverts, bridges etc.] to ensure controlled sedimentation and erosion during the construction and BRT operations.

Points of Discussion as agreed during the Negotiations: During the negotiations, the Karachi's torrential rains in the year 2020 were discussed. The Consultant confirmed that they will rely on their experience in similar projects to develop a reliable drainage system for the BRT corridor and the off-corridor interventions. They also mentioned that it is essential to ensure that the





surrounding areas do not affect the project (since the Services under this project will not resolve the drainage problem outside the scope of work). The Consultant noted and confirmed that if needed, they will highlight areas outside the project limits where drainage problems may be envisaged for the Client to raise with the concerned authorities. The Consultant agreed and confirmed to provide a detailed analysis and impact on drainage, pre and post BRT construction through a computer aided model as a part of the hydrological regime study.

7. Following the review of existing geotechnical survey reports, undertake **detailed geotechnical surveys and investigations** to ascertain additional necessary data required to prepare detail design. The Consultant shall put special emphasis on proposing innovative, time -saving and cost-effective methodologies to address soil and drainage related problems and shall investigate the suitability of locally available materials for their utilization by conducting materials source survey.
8. Undertake **utility surveys** in addition to the review of the surveys carried out during preliminary design to determine the existing location and condition of the utilities. Subsequently the Consultant shall coordinate with the relevant stakeholders and agencies for the timely diversion of these utilities and shall ensure minimum intervention to the existing utilities through design strategies.

The Consultant shall submit a technical report on the methodology, scope and schedule of works for the surveys and investigations at least two weeks before the commencement of surveys.

***Points of Discussion as agreed during the Negotiations:** During the negotiations, the Client mentioned the importance of conducting the initial studies for reviewing and updating the preliminary designs at the early stages of the Services. The Consultant concurred and highlighted the importance of fixing the preliminary design at an early stage to avoid any re-work in the subsequent detailed design stages and agreed to undertake detailed technical studies and analysis (with special emphasis on traffic and drainage).*

Detail Design

Detailed Design for the Yellow BRT project will consist of several elements for which requirements are presented in this section. There will be **one comprehensive Technical Report complimented with a spatial design and BIM model** covering all the listed elements of the Yellow BRT Corridor Detailed Design, as described below. The **overall cost estimate** will be compiled from the separate bills of quantities resulting from the individual estimates for the below listed elements, including the summary sheet.

Geometric Design

The Consultant is to prepare comprehensive geometric designs for the overall corridor and proposed/associated structures: including, but not limited to, carriageways, junctions, underpasses, bridges, service and complementary roads, footpaths, flyovers, etc. Non-motorized transport (NMT) elements shall be included and special emphasis to be given to the requirements of persons with disabilities and reduced mobility, accessibility and safety [during and post construction] considering the local context with specific driver and pedestrian's behaviors and limited enforcement.

The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. Horizontal and vertical alignment (survey control monument plan /1:250 (500) scale/;



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- typical cross-sections showing road carriageways, medians, footpaths /1:100 scale/; plan/profile sheets /1:250 horizontal and 1:25 vertical scale/ showing existing and proposed details, alignment geometry and super elevation data, carriageways, medians, footpaths, pedestrian crossings, outlines of structures, demolition needs and Right-of-Way (RoW) boundaries; cross-section plots at about 10 m intervals /1:50 scale/;
- iii. Junctions (plans and related profiles for interchange ramps and major junctions /1:250 horizontal and 1:25 vertical scale/; typical details for minor junctions, including channelization islands; plans to show signs and lines, pedestrian crossings, stop lines /1:100 (50, 25) scale/);
- iv. Ancillary works (traffic signs and road markings; barriers, guardrails, and fences; standard details, including minor intersection layouts, curb types, drainage pipes/channels, and headwall details /1:50 (25, 10) scale/);
- v. Bill of Quantities (BoQ) including the cost of implementing E&S safeguard requirements;
- vi. Technical specifications of all works;
- vii. **Confidential** cost estimate.

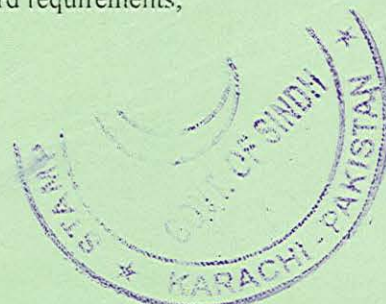
Stations

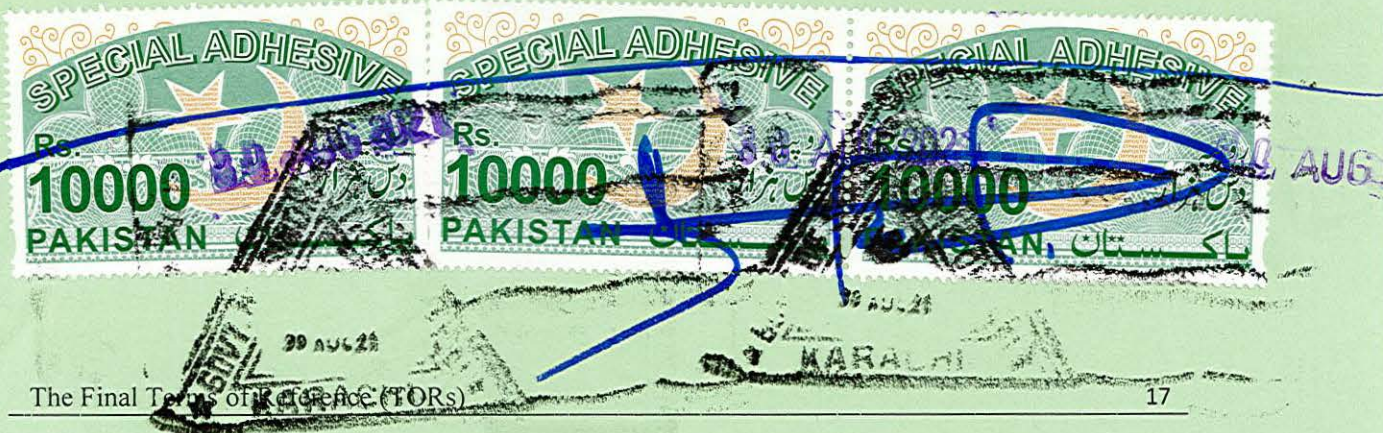
The Consultant shall prepare detailed engineering and architectural designs for all stations, based upon the projected passenger demand, operational plan, E&S assessments and with special emphasis on operations, accessibility, inclusivity and pedestrian safety. The Consultant will also define all equipment and components in terms of functional specifications, technical characteristics and technical restrictions as per those provided by the Client (*please refer to clarification # 41 issued on 28th November 2020*). The Consultant must try to harmonize the designs proposed with those developed for other corridors within the KMRT network, namely Green, Orange and Red BRT Corridors (*please refer to clarification # 03 issued on 21st December 2020*). The Consultant will explore revise/update options in coming-up with energy efficient and cost-effective designs. The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. General arrangement' drawings (plan and elevation views, layout information, overall dimensions, etc. /1:250 (100, 50) scale/);
- iii. Sub-structure details (e.g. foundations, pile caps, pier and abutment details, structural backfill requirements, reinforcement, etc. /1:100 (50, 25, 10) scale/);
- iv. Superstructure details (e.g. deck types and dimensions, wall and roof types and dimensions, waterproofing and utility requirements, etc. /1:100 (50, 25, 10) scale/);
- v. Electrical supply & fittings & various equipment location plans /1:100 (50, 25, 10) scale/;
- vi. Miscellaneous standard details /1:50 (25, 10) scale/;
- vii. Access arrangements /1:100 (50, 25, 10) scale/;
- viii. BoQ including the cost of implementing E&S safeguard requirements;
- ix. Technical specifications of all works;



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- x. Functional specifications, technical characteristics and technical restrictions for equipment;
- xi. **Confidential** cost estimate.

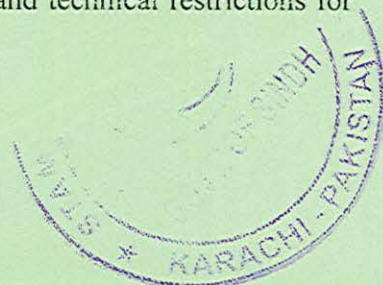
Station area design

The Consultant shall prepare, following the standards and guidelines established in the KMTS BRT Design Framework and other local or international best practices in station area planning, the designs of the public spaces and associated facilities of sites surrounding the System's stations and terminals, ensuring the provision of modern, user-friendly, universal, clear and efficient access to the system with concise and streamlined linkage with particular contexts of each of the station/terminal sites including, but not limited to, cultural and religious significance, existing and projected pedestrian patterns, supply of last-mile connectivity alternatives, commercial activities, parking needs. The design should also incorporate the recommendation made in E&S assessments. The designs to be developed must prioritize transit customer safety and security while guaranteeing that the efficient and hassle-free user integration and access to the station is optimized for all modes of arrival (i.e. NMT, feeder/complementary route, kiss & ride and park & ride). This analysis shall consider: (i) the findings of the Parking Study to determine level of parking supply, (ii) the findings of the BRT service plan to determine the transport integration facilities dimensions from feeder/complimentary routes, and other site-context specific characteristics to determine area requirements for temporary/dynamic activities (taxi stand, kiosks, urban furniture, parks & recreation, etc). [please refer to clarification# 13 and clarification# 26 issued on 21st December 2020]. The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. General arrangement' drawings (plan and elevation views, layout information, overall dimensions, etc. /1:250 (100, 50) scale/);
- iii. Sub-structure details (e.g. foundations, pile caps, pier and abutment details, structural backfill requirements, reinforcement, etc. /1:100 (50, 25, 10) scale/);
- iv. Superstructure details (e.g. deck types and dimensions, wall and roof types and dimensions, waterproofing and utility requirements, etc. /1:100 (50, 25, 10) scale/);
- v. Electrical supply & fittings & various equipment location plans /1:100 (50, 25, 10) scale/;
- vi. Miscellaneous standard details /1:50 (25, 10) scale/;
- vii. Access arrangements /1:100 (50, 25, 10) scale/;
- viii. Ancillary works (signage; barriers, guardrails, and fences; standard details, curb and footpath types /1:50 (25, 10) scale/);
- ix. BoQ including the cost of implementing E&S safeguard requirements;
- x. Technical specifications of all works;
- xi. Functional specifications, technical characteristics and technical restrictions for equipment;
- xii. **Confidential** cost estimate.



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Pavement

The Consultant shall prepare detailed engineering design for different pavement structures required for the project based on projected traffic, axle load and ground conditions [based on the geotechnical investigation reports and drainage condition].

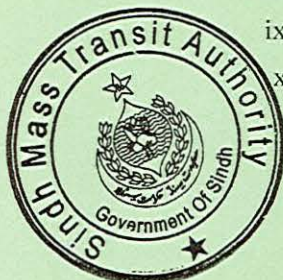
The main work of the Consultant will be to provide calculations of thicknesses [including the analysis of relevant stresses and strains, and fatigue capacity], definition of materials and relevant mixtures, and engineering specifications for construction. The consultant will follow "AASHTO Guide for Design of Pavement Structures 1993". The Consultant will verify the design using AASHTOWare or similar Mechanistic-Empirical Pavement Design software. Apart from the reports and calculations, the output will comprise appropriate drawings presenting typical sections and details /1:25 (10) scale/ and technical specifications of all works. The consultant will explore options for innovative, cost-effective, sustainable and environmentally friendly solutions in coming-up with the material selection and pavement designs. The Consultant will also consider existing road / pavement conditions through surveys and propose the solutions in order to minimize the re-work resulting eventually in time and cost saving.

Pedestrian and Roadside Facilities

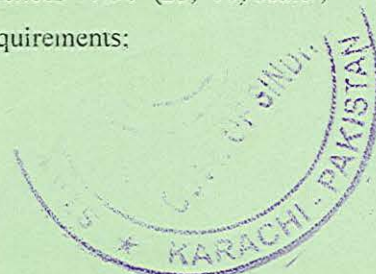
The consultant shall prepare detailed engineering design and technical details [with the help of pedestrian surveys and relevant pedestrian movement simulations (*please refer to clarification# 77 issued on 28th November 2020*) for the pedestrian crossings [at-grade and grade separated], footpaths and urban amenities on or adjacent to the footpaths including but not limited to bus shelters, parking facilities, plazas, etc. The Consultant is expected to propose such designs for pedestrian facilities which are safe, secure and easy to use with sufficient capacity along the corridor facilitating all types of pedestrian movement across and along the BRT corridor. The designs should be finalized with closed consultation of affected communities [for e.g. shop-keepers] and stakeholders [for e.g. Traffic Police department].

The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. General arrangement drawings (location and type of pedestrian crossings of the corridor /at grade, overpass or underpass/, pedestrian access routes to these crossings and stations; pedestrian routes along the corridor /1:250 (100) scale/;
- iii. Standard detail drawings for each type of pedestrian crossing /1:100 (50) scale/;
- iv. Detailed drawings specific to each pedestrian crossing location /1:100 (50) scale/;
- v. Plan and profile sheets for pedestrian access routes to stations and along the corridor /1:100 (50) scale/;
- vi. Typical sections /1:50 scale/;
- vii. Urban amenities on/adjacent to pedestrian routes (including waiting areas for buses, NMT, parking (if any), and other parking and relocated vendor markets (if any) /1:100 (50) scale/);
- viii. Street furniture, lighting, and barriers, guardrails, and fences /1:50 (25, 10) scale/;
- ix. BoQ including the cost of implementing E&S safeguard requirements;
- x. Technical specifications of all works;



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- xi. **Confidential** cost estimate.

Drainage

The Consultant shall prepare detailed engineering designs for the integrated drainage system within the corridor, with the specific attention to regulation of drainage in regular and storm conditions at underpasses and underground stations. The Consultant will also define all equipment and components in terms of functional specifications, technical characteristics and technical restrictions after reviewing the relevant data and historic events of drainage failure in the city or similar projects. The Consultant will explore innovative, cost-effective, sustainable and environmentally friendly solutions to the drainage to ensure zero water ponding and zero water spillage on the carriageway. The Consultant will also keep into consideration drainage and disposal of industrial waste while designing the drainage system.

The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. Longitudinal road drainage (table drains; curb and gutter; pipe drains or channels as appropriate to drain the carriageway to prevent ponding on the pavement at sag curves, and to intercept upstream catchment runoff and prevent it from causing a safety or nuisance problem for road users /1:250 (100, 50) scale/);
- iii. Underpass and underground station drainage (details of measures to manage regular and storm events /1:100 (50, 25, 10) scale/);
- iv. Plans for connection of the road drainage with the existing drainage system (plans of existing storm water drainage in the corridor; diversions or upgrades that may be required; temporary works that may be required to maintain existing drainage during construction, /1:250 (100, 50, 25) scale/);
- v. BoQ including the cost of implementing E&S safeguard requirements;
- vi. Technical specifications of all works;
- vii. Functional specifications, technical characteristics and technical restrictions for equipment;
- viii. **Confidential** cost estimate.

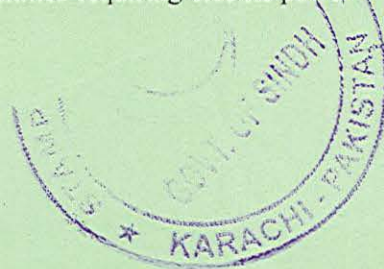
Electrical Supply, Traffic Signals and Street Lighting

The Consultant shall prepare detailed engineering designs for the electrical supply system and street lighting within the corridor, including lighting system for stations and underpasses, by exploring innovative, cost-effective, easy-to-maintain and environmentally friendly approaches, including solar. The system will cover backup source of power in case of failure of primary source. All equipment and components will be defined in terms of functional specifications, technical characteristics and technical restrictions. The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. Designs for all required electrical works (electrical works for traffic signals, overhead signage, stations and terminals and street amenities requiring electric power /1:250 (100, 50, 25) scale/);



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- iii. Designs for energy efficient street lights along the corridor /1:100 (50, 25, 10) scale/;
- iv. Plans for connection of the electrical works with the existing high and low voltage electrical supply system in the corridor (plans of existing electricity supply network in the corridor, including power lines, transformers and other equipment; photometric studies; any upgrades of lines or equipment that may be required to meet the electrical requirements of the corridor; diversion of existing lines or relocation of equipment; temporary works that may be required to maintain existing supplies during construction /1:250 (100, 50, 25, 10) scale/;
- v. BoQ including the cost of implementing E&S safeguard requirements;
- vi. Technical specifications of all works;
- vii. Functional specifications, technical characteristics and technical restrictions for equipment;
- viii. **Confidential** cost estimate.

Landscaping, Urban Design and Environmental Mitigation

The Consultant shall prepare detailed engineering designs for the landscaping and urban arrangements within the corridor (*please refer to clarification# 7 and clarification# 10 and clarification# 15 issued on 21st December 2020*). The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. General arrangement drawings (overall corridor landscaping/urban design concept; measures for environmental mitigation /1:250 (100, 50) scale/);
- iii. Planting plan /1:250 (100, 50) scale/;
- iv. Details of typical design features /1:50 (25, 10) scale/;
- v. Plans and elevations at specific locations, including stations /1:250 (100, 50, 25) scale/;
- vi. BoQ including the cost of implementing E&S safeguard requirements;
- vii. Technical specifications of all works;
- viii. **Confidential** cost estimate.

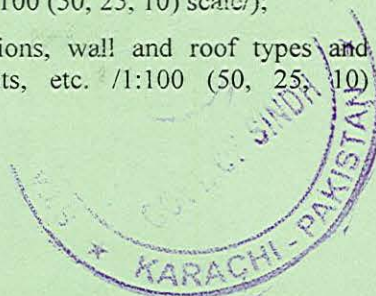
Depots

The Consultant shall prepare detailed engineering and architectural designs for proposed depots based on the bus traffic, the operational plan, and E&S assessments. The Consultant will also define the equipment and components in terms of functional specifications, technical characteristics and technical restrictions as per those provided by the Client (*please refer to clarification # 41 issued on 28th November 2020 and clarification# 11 issued on 21st December 2020*). These will cover equipment and components for depot, maintenance and administrative purpose. The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. General arrangement' drawings (plan and elevation views; layout information; overall dimensions, etc. /1:250 (100, 50) scale/);
- iii. Sub-structure details (e.g. foundations, pile caps, pier and abutment details, structural backfill requirements, reinforcement, etc. /1:100 (50, 25, 10) scale/);
- iv. Superstructure details (e.g. deck types and dimensions, wall and roof types and dimensions, waterproofing and utility requirements, etc. /1:100 (50, 25, 10) scale/);



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- scale/);
- v. Electrical supply and fittings and equipment location plans /1:100 (50, 25, 10) scale/;
 - vi. Miscellaneous standard details /1:50 (25, 10) scale/;
 - vii. Access arrangements /1:100 (50, 25, 10) scale/;
 - viii. BoQ including the cost of implementing E&S safeguard requirements;
 - ix. Technical specifications of all works;
 - x. Functional specifications, technical characteristics and technical restrictions for equipment;
 - xi. **Confidential** cost estimate.

***Points of Discussion as agreed during the Negotiations:** During the negotiations, it was agreed that the Consultant shall include wastewater treatment plant (lesson learned from a similar BRT project in Karachi) as a regulatory requirement from SEPA.*

Structures

The Consultant shall prepare detailed engineering designs for proposed structures [bridges, over- and under-passes, foot bridges, culverts, retaining walls, etc.] considering cost and effective construction methodologies, design life, logistics, availability of construction materials, the capacity of Pakistani construction industry and traffic management requirements during the construction process, E&S assessments, etc. The Consultant will explore innovative, cost-effective, sustainable and environmentally friendly solutions and will make best use of Design for Safety and Design for Maintenance philosophies in the detail design. The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. General arrangement' drawings (plan views; layout information; overall dimensions, etc. /1:250 (100, 50) scale/);
- iii. Sub-structure details (e.g. foundations, pile caps, pier and abutment details, structural backfill requirements, reinforcement, etc. /1:100 (50, 25, 10) scale/);
- iv. Superstructure details (e.g. deck types and dimensions, waterproofing and utility requirements, etc. /1:100 (50, 25, 10) scale/);
- v. Electrical supply and fittings and equipment location plans /1:100 (50, 25, 10) scale/;
- vi. Miscellaneous standard details /1:50 (25, 10) scale/;
- vii. Access arrangements /1:100 (50, 25, 10) scale/;
- viii. BoQ including the cost of implementing E&S safeguard requirements;
- ix. Technical specifications of all works;
- x. **Confidential** cost estimate.

Utilities Relocation

The Consultant shall prepare detailed engineering designs for proposed relocations of utilities through proper coordination with relevant utility agencies ensuring that the technical requirements of the utility agencies are addressed. The exercise should be carried out such that minimum disturbance to the existing utility network happens and the logistics, risks, safeguards and time requirements are catered for appropriately during the process. The proposed relocation designs shall uplift the life span and quality



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of new utilities and will also be considering future needs of utilities so that minimum disruption may happen during the operations of the project. The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. Designs for all required relocations (power lines, water supply lines, gas lines, sewerage, etc. /1:250 (100, 50) scale/);
- iii. Details of typical design features /1:50 (25, 10) scale/;
- iv. BoQ including the cost of implementing E&S safeguard requirements;
- v. Technical specifications of all works;
- vi. **Confidential** cost estimate.

Traffic Management

The Consultant shall develop Traffic Management Plans (TMP) to implement during construction recommending measures that would minimize the impact of construction activities on the operation and usage of the road network in the area. E&S assessments should be referenced for the preparation of TMP. The output will comprise separate drawing sets, and associated plan, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. Recommended detours and arrangements /1:500 scale/;
- iii. Details of recommended measures (signs, devices, etc. /1:100 scale/)
- iv. BoQ including the cost of implementing E&S safeguard requirements;
- v. Technical specifications of all elements;
- vi. Functional specifications for traffic management equipment;
- vii. **Confidential** cost estimate.

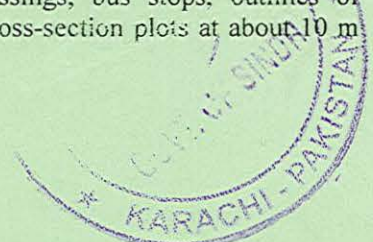
Off-Corridor Interventions

The Consultant is to prepare designs for the overall cross section of all off-corridors segments confirmed for the opening year, including, but not limited to, bus shelters, passenger waiting platforms, carriageways, intersections, NMT, and roadside facilities, as deemed necessary and following the proposed and approved design framework developed during preliminary design stages. The final definition of the off-corridor segments subject to detailed design will be confirmed and communicated by the Client upon confirmation of the feeder/complementary route network to operate on opening year. The Client will provide said confirmation at inception stage [as per the clarification issued on 28th November 2020, the survey of the off-corridors routes will determine the feasibility of all the interventions, however the provision of NMT facilities (sidewalks and crossings) should be given priority over motorized facilities]. The output will comprise separate drawing sets, and associated reports and calculations, for the following items:

- i. Index (project location and drawing key plans; legend and index sheets);
- ii. Horizontal and vertical alignment (survey control monument plan /1:250 (500) scale/; typical cross-sections showing road carriageways, bus shelters, waiting platforms, medians, footpaths /1:100/; plan/profile sheets /1:250 horizontal and 1:100 vertical scale/ showing existing and proposed details, alignment geometry and super elevation data, carriageways, medians, footpaths, pedestrian crossings, bus stops, outlines of structures, demolition needs and RoW boundaries; cross-section plots at about 10 m



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The Final Terms of Reference (TORs)

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intervals /1:50 scale/;

- iii. Intersections (plans and related profiles /1:250 horizontal and 1:25 vertical scale/; typical details, including channelization islands; plans to show signs and lines, pedestrian crossings, stop lines /1:100 (50, 25) scale/);
- iv. Pavement design (typical section and details /1:25 (10) scale/);
- v. Ancillary works (traffic signs and road markings; barriers, guardrails, and fences; standard details, including minor intersection layouts, curb types, drainage pipes/channels, and headwall details /1:50 (25, 10) scale/);
- vi. BoQ including the cost of implementing E&S safeguard requirements;
- vii. Technical specifications of all works;
- viii. **Confidential** cost estimate.

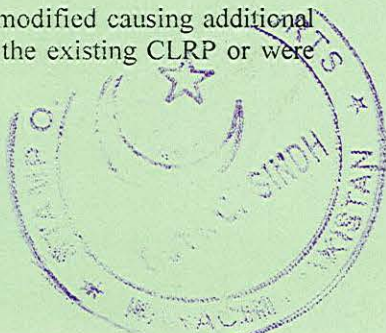
Environmental and Social Safeguards

During Design phase, the Consultant shall monitor, ensure and confirm that environmental and social safeguards compliance is being made. Main tasks are:

1. Review the environmental and social assessments (EIA, SIA and CLRP) previously conducted and completed,
2. Support the Client to make necessary amendments based on the detailed design, perform additional site and data analysis as necessary, carry out consultations with key stakeholders and prepare the revised version of environmental and social assessments. (please refer to clarification# 45, clarification# 46, clarification# 47 clarification# 48 and clarification# 49 issued on 28th November 2020)

Specific tasks are:

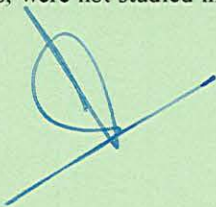
- i. Get in touch, as early as possible, and be acquainted with the Project/Consultant's team(s) retained for this Consultancy with the objective of providing technical input persistently on E&S aspects throughout and during the entire course of the project. The level of efforts should be aimed to fully synergies and timely integrate E&S safeguard requirements in final project design/documents.
- ii. Review, revisit and reassess the CLRP, EIA and SIA already conducted in the context of: (a) changed scenario (socio-environmental conditions, health and safety requirements, security issues, key stakeholders, institutional arrangements, ESMP monitoring and reporting mechanisms etc.), (b) previous limitations such as budget, time and lack and/or timely unavailability of required information/data⁵, (c) likely changes as a result of detailed engineering designs; and above all (d) its adequacy, technical soundness, and appropriate completeness.
- iii. Based on the above review, identify gaps and areas of improvements in all key aspects of EIA and SIA. These include, but not limited to, project environmental and socio-economic baseline conditions, regulatory and Bank's policy requirements, project alternatives considered and proposed, potential impacts – *both positive and adverse* – and assessed significance, proposed mitigation measures and management plan(s), institutional, capacity building, monitoring and reporting mechanism; and sufficiency of budget allocations for implementing SG documents.
- iv. Should the footprint or alignment of the project be modified causing additional potential adverse livelihood impacts not covered in the existing CLRP or were





- not within the scope of the CLRP prepared during the preliminary design stage, conduct additional assessment of livelihood impacts as required.
- v. Ascertain and discuss with the PMT/WB team(s) the gaps and areas of improvement identified as assessed above, recommend appropriate measures and revisions required to safeguards documents for addressing such gaps.
 - vi. Support the client in conducting stakeholders' consultation/workshop, if required, document the concerns, suggestions and improvements proposed and incorporate the outcomes in revised EIA, SIA, and CLRP.

⁵ Given the time and budget constraints, some sites such as "Tariq Road and KPT interchange", that required complex solutions, were not studied in detail/technical depth required, and is pending to be carried out during detailed design.



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- vii. Review the "Road Safety Audit (RSA)"⁶ – *completed as part of the preliminary design* – with a view to benefit of its findings/ recommendations pertinent to occupational health and safety; and to possibly feed into the revised EIA.
- viii. Assist the Client to prepare the revised draft EIA, SIA, and CLRP based on the review findings and consultation process.
- ix. Coordinate with the Client and Bank for the review, comments and feedback on the revised EIA, SIA and CLRP.
- x. Assist the Client to prepare the Final safeguards documents, EIA, SIA and CLRP.
- xi. Guide and support the Client in arranging the re-disclosure of SG documents, at/on all appropriate forums including official websites of GoS, SMTA and PMT.
- xii. Review and provide technical input on all Request for Proposals (RFP) and Bidding documents. Confirm the safeguard requirements become integral part of each bidding/tender document ensuring the respective contractor is fully responsible for managing and complying SG documents during project execution. The Consultants will further ensure that contractor(s) should not absolve of their given responsibilities in: (a) preparing and implementing different site specific and safeguard related management plans (as guided by EIA, SIA and CLRP); (b) timely employing and mobilizing needed/required resources including: staff, tools and equipment, well in advance.
- xiii. In addition, support the client in supervising the Contractor in all matters concerning the implementation of the Gender-Based Violence (GBV) Action Plan. For example, the GBV Action Plan prepared by the Client would need to be finalized with input from the contractor, in terms of providing an approach on how to implement and monitor the plan, including sanctions, which details how allegations of Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) will be handled (investigation procedures) and what disciplinary action would be triggered for violation of the Code of Conduct (CoC) that the contractor workers would need to sign⁷. If required, instruct the Contractor to take actions in accordance with the requirements of the GBV Action Plan. Work with PMT's Gender Specialist who will be leading the implementation of the project's overall Gender Component including (but not limited to) GBV Action Plan.
- xiv. Land acquisition and Resettlement Plans, if needed, shall include preparation of plans showing land areas to be acquired for construction of the BRT and bus depots and for which occupation is required during all or part of the construction period. Also, preparation of the detailed plans showing lot boundaries for land areas including plans showing location of resettlement sites. General management drawings for resettlement sites, including access and utilities, and layout of building, roads and footpaths internal to the resettlement sites; shall also be prepared.

⁶ Or its updated version.

⁷ See the World Bank's Good Practice Note on Addressing Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) in Investment Project Financing involving Major Civil Work's boundaries for land areas including plans showing location of resettlement sites. General arrangement drawings for resettlement sites, including access and utilities, and layout of buildings, roads and footpaths internal to the resettlement sites; shall also be prepared
<http://pubdocs.worldbank.org/en/741681582580194727/ESF-Good-Practice-Note-on-GBV-in-Major-Civil-Works-v2.pdf>



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4.1.6

BIM Model

- a) Information of the Deliverables i.e Designed Performance of Managed Assets and all components in the design.

The final details for consultant and contractor deliverables are to be included in the agreed project BIM Execution Plan (BEP), and this could also inform the production and delivery of the Asset Information Model that meets the building/facility owner or client's requirements

- b) BIM Model Deliverables

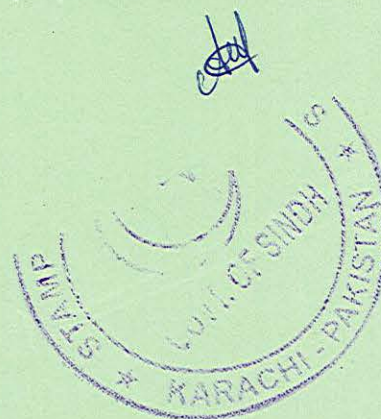
The BIM deliverables usually consist of the geometric elements (e.g. assets to be modelled) and the non-geometric data (e.g. asset information to be tagged as parameter in the geometric elements). Not all information about a facility needs to be captured within a BIM model. [refer to clarification# 16 and clarification# 18 issued on 21st December 2020]

Points of Discussion as agreed during the Negotiations: During the negotiations it was agreed that the Consultant will submit LOD 300 model during Phase 1. Whereas, the civil works contractors shall update this model from LOD 300 to LOD 400/500 and made part of their respective scope of works as further specified in the technical specifications / employer's requirements for relevant construction packages, and submit back for review by the Consultant for final review and record. The Consultant shall ensure that this requirement is duly taken care at the time of Request for Bids preparation.

Points of Discussion as agreed during the Negotiations: During the negotiations, it was agreed, upon the request from the Client that revision of PC-1 will be undertaken by the Consultant, If the PCI revision warrants the inputs from other specialties other than TORs (example buses/ITS/etc.), these shall be provided to the Consultant for the incorporation in the Revised PC-1 and producing reasonable number of copies for the Client. The same was mentioned under "response to queries raised in pre-proposal meeting dated 28th November 2020".

The forecasted demand will be validated utilizing the existing traffic model that was prepared and approved during the preliminary stage and which will be handed out by the Client to the Consultant. The Consultant scope of work does not cover any major modifications to the existing traffic model other than what is stipulated in the project brief.

Points of Discussion as agreed during the Negotiations: During the negotiations, it was discussed and agreed with the consultant that the TORs be fulfilled in line with the proposed methodology (submitted by the consultant as a part of technical proposal).





TASK 2 – PREPARATION OF BIDDING DOCUMENTS **FOR CONTRACTOR SELECTION**

All procurement activities under the KMP will be made using the **WB Procurement Regulations for IPF Borrowers for Goods, Works, Non-Consulting and Consulting Services (July 2016; revised November 2017 and August 2018)**. The bidding documents will include specific requirements that minimize the use of expatriate workers and encourage hiring of local workers.

The procurement approach to construction works contracts for the BRT infrastructure will be open International Competitive Bidding (ICB) using request for bids based on single stage two envelope with post qualification. The procurements for off-corridor improvement works shall be targeting the national market and thus National Competitive Bidding (NCB) approach shall be used.

The WB's standard bidding documents shall be used for ICB procurements whereas the procurements targeting the national market would be carried out using the NCB bidding documents. The NCB documents will be agreed with the WB and will include provisions meeting the aspects given in section 5.4 of the WB Procurement Regulations.

Evaluation and award of contract will be based on the lowest evaluated responsive bid received from a qualified bidder. Contracts are envisaged to be **admeasurement with price adjustment**. No specific contract conditions are identified at the moment; however, this does not restrict the Consultant to propose those.

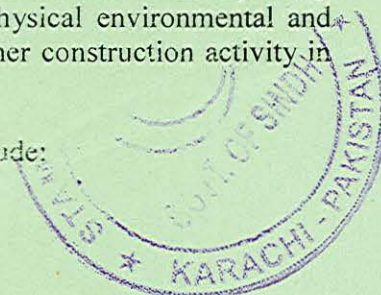
Based on the Yellow BRT Corridor segments and the complexity of the operations during the construction phase, the summary of *anticipated* procurement packages is provided in the *Table 3* below.

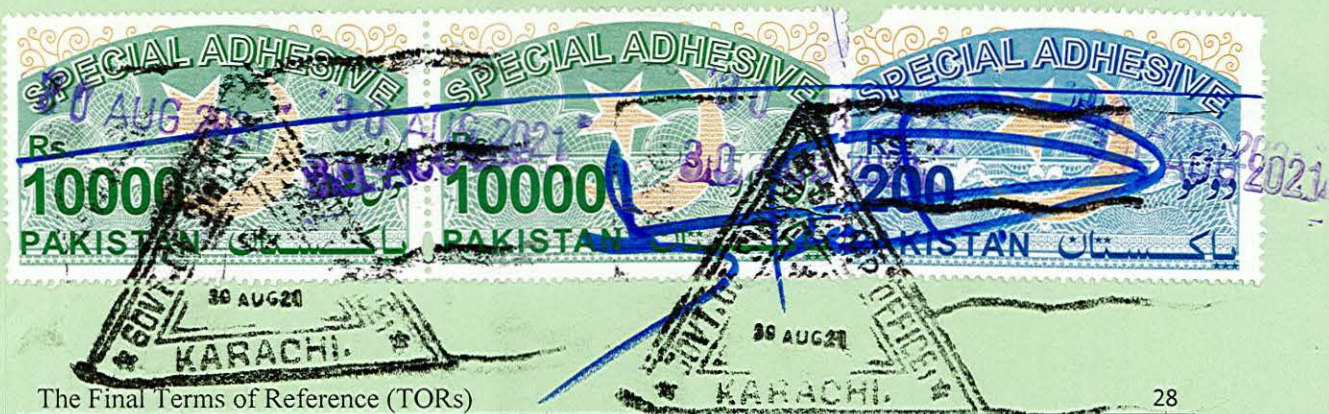
Table 3 Yellow BRT Corridor infrastructure procurement packages

Procurement package	Approach	Priority
Package 1: Depot No. 1	NCB	II
Package 2: Depot No. 2	NCB	II
Package 3: Road corridor & BRT infrastructure (segments 0, 1 and 2)	ICB	III
Package 4: 1 km long bridge (segment 3)	ICB	I
Package 5: Road corridor & BRT infrastructure (segments 4, 5, 6 and 7)	ICB	III
Off-corridor improvements - 1 Package	NCB	II

Prior to launching the procurement activities, the Consultant shall prepare bidding documents for civil works packages according to priority schedule presented in Table 3, and finalize those upon receiving comments from the Client. Specific attention shall be given to preparation of contractor's selection criteria. There is also a need to provide sample environmental and social safeguards non-conformance documentation with sufficient details to inform the contractors at the bidding stage that they will be, among all, assessed on environmental and social capability and that they must deploy staff to carry out and supervise the physical environmental and social mitigation measures and checking as they would for any other construction activity in line with other standards of quality and control.

The bidding documents are to be based on Detailed Design, and include:





The Final Terms of Reference (TORs)

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- Request for bid, instructions to bidders, and bid forms;
- BoQ including the cost of implementing E&S safeguards;
- Technical specifications;
- Relevant set of drawings;
- Conditions of contract;
- Form of contract; and
- SG requirements.

During the bid preparation period, the Consultant shall fully assist in conducting pre-bid conference and site visits, preparing minutes on pre-bid conference and site visits, responding to questions by bidders, preparing addendums to bidding documents [if any], and opening of bids. To the extent necessary and practical, the Consultant shall assist in: evaluation of bids, preparation of evaluation reports, contract award, any negotiations/clarification with the successful bidder to expedite preparation activities, civil works and supervision assignment.

Procurement of Works under Design-Build Mode

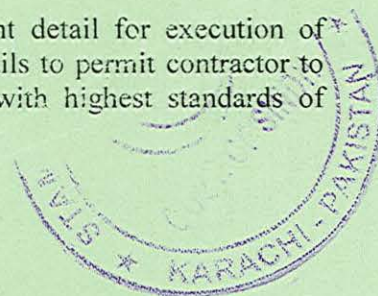
The construction works contract for the Package 4, i.e. 1 km long bridge, will be awarded on design and build (D&B) basis.

The Consultant shall:

1. Review available Preliminary Design and suggest improvements [if any] before using that Preliminary Design to describe the Employer's requirements in the bidding documents.
2. Assist the Client in preparation of Employer's requirements on the basis of the Preliminary Design and above recommendations, as well as in preparation of bidding documents (initial selection document and request for proposals).
3. Provide necessary support to the Client in initial selection of contractors by assisting in: preparation of initial selection document, advertising calls for initial selection, responding to questions by potential applicants and opening of applications, evaluation of submissions by applicants, preparation of evaluation reports, preparation and distribution of notices on initial selection, and responding to applicants' appeals, if any.
4. During the proposal preparation period, assist in conducting pre-proposal conference and site visit, preparing minutes on pre-proposal conference and site visit, responding to questions by proposers, preparing addendums to initial selection documents (if any), and opening of proposals.
5. Assist in: evaluation of proposals, preparation of evaluation reports, contract award, any negotiations/clarification with the successful proposer to expedite Detailed Design preparation and execution of civil works.

Draft Detailed Design for Package 4 shall be submitted for review within maximum of 2 (two) months from the commencement of the construction contract following the priorities detailed in Table 3.

The main purpose of the Detailed Design is to provide sufficient detail for execution of works. The Detailed Design drawings are to contain sufficient details to permit contractor to carry out construction work effectively and unambiguously and with highest standards of





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quality and consistent with environmental and social safeguards documentation, and will be further supported by relevant reports, calculations and specifications.

Environmental and Social Safeguards

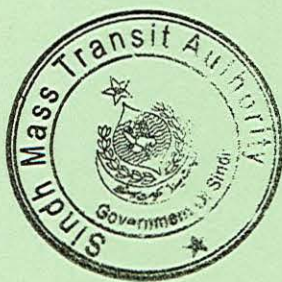
The Consultant will proactively integrate E&S safeguard aspects in key project processes/procedures covering, among others, procurement process, preparation and evaluation of bidding documents.



**TASK 3 – CONSTRUCTION SUPERVISION AND
CONTRACTS ADMINISTRATION**

**[DELETED IN ITS ENTIRETY AND MADE PART OF THE FINAL TORs
FOR PHASE 2 CONTRACT]**

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Capacity Building and Innovative Approach

The Consultant would be required to plan and deliver capacity building trainings, through internationally accredited institutions / trainers, for the Client's staff. These trainings would be in the areas of BRT design & planning concepts (four complete trainings/certifications), procurement (design build contract) & contract management (two complete trainings/certifications), project management (two complete trainings/certifications), BIM (two complete trainings/certifications), and relevant engineering software, financial and risk management (four complete trainings/certifications), advanced economic and financial evaluation of capital projects (four complete trainings/certifications), etc. These trainings must be internationally recognized institutions / trainers.

The Client desires to implement the Project adopting new and modern techniques for project planning, design and implementation i.e. BIM. The Consultant will undertake the design stage using processes compliant with BIM 2.0 (or later), as defined in BS 1192 or equivalent. All design layers embedded in 4D BIM model with materials information including recommended vendors. During the construction stage of the project, the consultant shall use BIM 2.0 (or later) processes to fulfill its contractual obligations to the Client. The following BIM deliverables and other outputs will be required:

- Site model
- Massing model
- Architectural, structural, MEP models
 - For regulatory submissions
 - For coordination and / or clash detection analysis
 - For visualization
 - For cost estimation
- Schedule and phasing program (In BIM)
- Construction and fabrication models
- Shop-drawings
- As-built model (in native proprietary or open formats)
- Data for facility management (*please refer to clarification# 19 issued on 21st December 2020*)
- Other additional value-added BIM services

There will be routine presentations during the Project to monitor the BIM model in contrast to the construction works and the final BIM model shall be under the ownership of the Client. Therefore, the Consultant must identify skilled staff for all disciplines who will take part in the project delivery from design stage to execution and operation/maintenance through BIM.



DELIVERABLES

The Consultant shall prepare and submit designs, documents and reports described in this section. All deliverables shall be prepared in English. In addition to 3 (three) hard copies, electronic version of each report, in an open format ready for editing (pdf version is not acceptable), will be submitted. The *Table 6* below provides the summary of all specified and described deliverables, and schedule of submission.

Points of Discussion as agreed during the Negotiations: During the negotiations, it was agreed and clarified that the procurement of software is not the part of the TORs. However, the Consultant shall hand-over the deliverables to the SMTA as per the TORs including soft copies of the drawings; model(s); and simulations in relevant software version but not the software(s) itself.

INCEPTION REPORT

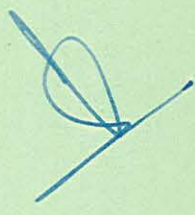
The Consultant shall submit Draft Inception Report within 4 (four) weeks of commencement of services. Apart from the detail description of the program of services for the first two tasks (Detailed Design preparation and Procurement Assistance), report shall include results of the Preliminary Design review, as well as recommendations for the following design stage.

The Client shall review the draft within 2 (two) weeks of submission upon which the Consultant will have additional 2 (two) weeks for submission of the final Inception Report.

INTERIM REPORTS ON SUPPORTING TECHNICAL STUDIES AND ANALYSIS

Using the findings of the additional surveys, investigations and analysis carried out and listed in Section the Consultant shall submit interim reports summarizing the findings of the consulting activities for the following:

Table 4 Schedule of delivery for Supporting Studies and Analysis



Report	Submission
Topographic Survey	4 months from start
Traffic Engineering Study	4 months from start
Parking Study	4 months from start
Residual Pavement Strength Survey	4 months from start
Structural Condition Survey	4 months from start
Hydrological Study	4 months from start
Geotechnical Survey and Investigations	4 months from start
Utility Survey	4 months from start

DETAILED DESIGN

Draft Detailed Design for all infrastructure shall be submitted for review within maximum of 6 (six) months from the commencement of the services following the priorities detailed in *Table 3*, and in accordance with the schedule provided in *Table 5* below. The consultant will organize and conduct meetings with project stakeholders as needed, as well as workshops after submission of draft and final detailed designs, to guarantee mutual understanding of project issues and proposed options. All expenses for those workshops should be borne by the consultant under their consulting contract.

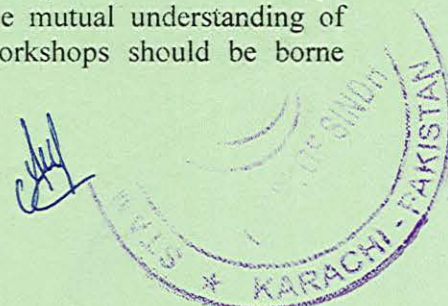


Table 5 Schedule of delivery for Detailed Design

Procurement package	Submission
Package 1: Depot No. 1	4 months from start
Package 2: Depot No. 2	4 months from start
Package 3: Road corridor & BRT infrastructure (segments 0, 1 and 2)	7 months from start
Package 4: 1 km long bridge (segment 3)	See section of Detail Design Review Report for Package 4
Package 5: Road corridor & BRT infrastructure (segments 4, 5, 6 and 7)	7 months from start
Off-corridor improvements – 1 Package	4 months from start
Revised ESIA, CLRP, SIA Reports	With each package

BIDDING DOCUMENTS

Draft and final bidding documents will be prepared and submitted along with the draft/final Detailed Design for each package following the schedule provided in Table 5, except for Package 4 which shall be delivered 2 (months) from start of services.

The WB's standard procurement documents shall be used for developing ICB packages.

One set of standard NCB documents shall be prepared and agreed with the Bank prior to adopting them for the identified procurement packages.

Points of Discussion as agreed during the Negotiations: During the negotiations, the Client emphasized that starting the civil works of Package 4 is on high priority for the Client. The Consultant agreed to commit to complete design review and preparation of bidding documents in 8 weeks positively, in close coordination with the Client for the collection of necessary data in order to prepare comprehensive Design Build based bidding documents with sufficient information for the bidders to provide reasonable/competitive bids and to protect the Client from claims. The Consultant also ensured full support to the Client to fulfill the relevant safeguard regulatory requirements in line with the TORs.

Points of Discussion as agreed during the Negotiations: During the negotiations, the Consultant confirmed that under DRAFTING AND REPRODUCTION OF REPORTS (page 24 of Financial proposal) includes Printing (and Logistics involved to deliver reports and bidding documents) for a reasonable number of copies of bidding documents.

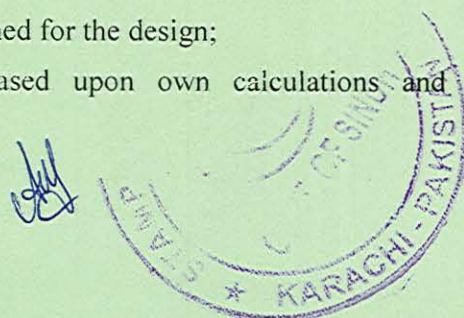
DETAILED DESIGN REVIEW REPORT FOR PACKAGE 4

The Consultant shall review Detailed Design developed by the contractor and comment on any issues, mistakes or improvements that, in the opinion of the Consultant, need to be addressed to secure successful completion of the D&B contract. The Consultant will assist the Client in review and approval of the design by certifying that the design meets all required parameters and comply with the Employer's requirements, moreover, ensure that any issues associated with the contractor's design are resolved expeditiously.

The Consultant will have the following obligations:

1. Assess the adequacy of the basic input (topography, geotechnics, hydrology, pavement, etc.) data used for the design;
2. Assess the applicability of the design basis established for the design;

Check adequacy of the contractor's design based upon own calculations and evaluations;



4. Assist in obtaining approval of the design from the official body/ies, if any.

The Consultant shall review Detailed Design set of documents for 1 km long bridge and submit the relevant report within the 3 (three) weeks upon its submission by the Contractor. This report shall include results of the review and identification of any non-compliance likely to cause material deficiency and/or delay, or other adverse consequences compromising the safety, serviceability and economy of the design based on the guidelines provided in the Employer's requirements of the bidding document. Report will contain specific determination regarding the content and quality of the submission, "no comments" or "minor comments" which do not require resubmission or "specific comments" where the design is not in accordance with the applicable procedure and code requirements or deviating any legal and technical regulations. With such specific comments, the Consultant shall ensure that the contractor resubmits the revised duly complied Detailed Design for further review within agreed time frames. The Consultant shall ensure that the concerned design review team of consultant work jointly with the contractor to address comments on the design, minimize rework potential and reduce the cycle of comments from consultant to the contractor during finalization of detailed design. The Consultant shall ensure that changes are proposed wherever the contractor's design violates the pertinent codes, procedures and requirements described in the Employer's requirements, however, margin for discretion of design shall be provided to the contractor and extent of changes shall not cause to absolve the contractor from the responsibility of design or provide grounds of claim to the contractor due to the changes suggested above and beyond the Employer's requirements.

If, in the opinion of the Consultant, there is a need for additional field and/or design work to secure quality and an acceptable design life of the works covered by the contract, required changes shall be defined and further work of the contractor will be supervised by the Consultant.

Submission and Approval of Deliverables:

The Consultant will have to submit the deliverables as per the timelines mentioned in Table 6.



Table 6 Summary and schedule of deliverables (*Start means contract effective date)

Phase	Deliverable	Submission
	Inception Report followed by the workshop	Draft 4 weeks from start Final 2 weeks after receipt of comments
	Interim Report – Supporting Studies and Analysis Traffic Engineering Study Parking Study Topographic Survey	
Design	Residual Pavement Strength Survey Structural Condition Survey Hydrological Study Geotechnical Survey and Investigations Utility Survey	Draft 4 months from start Final 2 weeks after receipt of comments
	3. Detailed Design (3 workshops for briefing on analysis reports, detailed designs and safeguards)	
	Draft for Depots No. 1 and No. 2 Draft for Road corridor & BRT infrastructure (segments 0, 1 and 2) Draft for Road corridor & BRT infrastructure (segments 4, 5, 6 and 7) Draft for Off-Corridor improvements Draft Revised ESIA, CLRP, SIA Reports All final designs & Final Revised ESIA CLRP, SIA Reports	4 months from start 7 months from start 7 months from start 4 months from start with detail designs 4 weeks after receipt of comments
	4. Bidding documents Draft for Depots No. 1 and No. 2 Draft for Road corridor & BRT infrastructure (segments 0, 1 and 2) Draft for 1 km long bridge (segment 3) Draft for Road corridor & BRT infrastructure (segments 4, 5, 6 and 7) Draft for off-corridor improvements All final versions	Within one month of the completion of detailed design of respective packages. 4 weeks after receipt of comments
	5. Detailed Design Review Report for Package 4	3 weeks upon receipt of design
Note: SMTA will provide their comments within 2 weeks from the date of receipt of the Draft report(s) for the Consultants to finalise the relevant report(s).		



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Points of Discussion as agreed during the Negotiations: During the negotiations, the Consultant requested for confirmation that the ITS consultant will be appointed at the early stage to have their inputs in an integrated manner. The Client agreed and appreciated the concern but also added that it is anticipated that the completion of the detailed design and bidding documents for Package 1 and 2 be carried out by the Consultant in such a way that the inputs from the ITS consultant be incorporated in the design at the later stage, without delaying the start of construction and sequencing the construction activities accordingly. The approach was mutually agreed.

Points of Discussion as agreed during the Negotiations: During the negotiations, the Client mentioned that the Package 1 and 2 i.e both bus depots are also on priority and that the Consultant is anticipated to strive for early completion of detailed designs and bidding documents (and completion of safeguard requirements) to ensure early start of construction, which the Consultant agreed.

TEAM COMPOSITION

In order to execute its obligations, the Consultant shall provide the staff and its head office expert assistance as described hereunder. It is specifically noted that the preparation of the Detailed Design for the Yellow BRT Corridor, Depots and off-corridors will run in parallel and the Consultant is required to secure enough capacity of design teams. In order to properly undertake the services, the Consultant shall be expected to field well-qualified key & non-key staff with fluency in English, headed by a **Project Manager**.

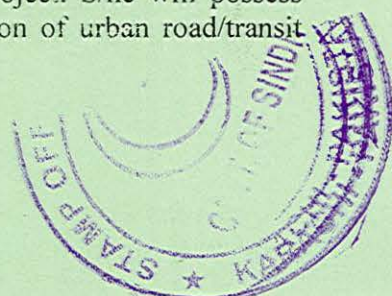
Project Manager: Shall have overall responsibility for coordination among the consultant's team, PMT/SMTA and other stakeholders during the complete implementation of the project and provides overall guidance and support to its team. S/he shall possess at least 20 (twenty) years of experience, out of which at least 15 (fifteen) years as a team leader or equivalent capacity on civil engineering projects preferably infrastructure development and has led the team of international and national experts.

Educational Qualification: Shall be a qualified Civil Engineer, preferably with master's degree in civil engineering or relevant subject (internationally recognized professional qualification). The person on this position should have ability to lead team-work during the projects, interpersonal, inter-cultural and strong communication skills to ensure effective stakeholder management throughout the project.

KEY STAFF

Phase 1: DETAILED DESIGN AND PROCUREMENT SUPPORT

- 1.1 **Senior Urban Road and Bus Rapid Transit System Expert- Team Leader Design:** Shall have full responsibility for all technical and administrative aspects, including stakeholder management, required for the design phase to ensure timely preparation of these. S/he shall possess at least twenty (20) years of experience in infrastructure projects, out of which at least twelve (12) years as a Team Leader or equivalent capacity on urban road/transit and infrastructure design and construction projects of similar nature, scale and complexity to this project. S/he will possess extensive experience in design, construction and supervision of urban road/transit



projects, contract and project management. S/he should have served in a similar role on long-term basis on at least three (3) previous successfully similar assignments where the value of the works designed / executed was at least USD fifty (50) million for each assignment. Experience of working for at least five (5) years in countries with similar conditions.

Educational Qualification: Shall be a qualified Civil Engineer, preferably with master's degree in civil engineering or relevant subject (internationally recognized professional qualification). The person on this position should have ability to lead team-work during the projects, inter-personal, inter-cultural and strong communication skills to ensure effective stakeholder management throughout the project;

- 1.2 **Senior Bus Rapid Transit System Design Expert:** shall have at least fifteen (15) years of professional experience in urban transport planning or engineering out of which at least ten (10) years of experience should be in a similar role working on projects of similar nature, scale and complexity. H/She shall be responsible to assist the Team Leader in managing *all* design related matters and shall lead the design team in preparation of detail designs of the project, relevant technical documentations and comprehensive design coordination keeping all aspects of urban transport, mass transit and quality in consideration. Experience of working for at least 5 (five) years in countries with similar conditions, fluency in English language is required.

Educational Qualification: Shall be a qualified Civil / Transport Engineer, preferably with master's degree in civil engineering – specialization in Transportation/ Urban Transport/ Traffic Engineering or relevant subject (professional qualification recognized internationally). Advanced qualifications and experience in MRT/BRT systems, planning, design & operations, MRT/BRT corridor design, street design, and BRT system planning and design, Public Transport System reform, management, and implementation will be an added advantage;

- 1.3 **Senior Structural/Bridge Engineer:** At least twenty (20) years of professional experience in structural design and bridge construction, out of which at-least fifteen (15) years in concrete bridge and viaduct/underpasses designs. H/She shall oversee structures design and shall lead the team of structural engineers for all structural design works to be incorporated into the detail design, design reviews and coordination during construction supervision. Experience of working for at least 5 (five) years in countries with similar conditions.

Educational Qualification: Shall be a qualified Civil Engineer, preferably with master's degree in civil/structural engineering or relevant subject (professional qualification recognized internationally). Advanced certifications and knowledge in Seismic Analysis and Structural Dynamics, Structural Integrity and Maintenance, Failure Analysis will be an added advantage;

- 1.4 **Senior Pavement Engineer:** At least 15 (fifteen) years of professional experience, out of which at-least twelve (12) years in geometric design of urban road and BRT projects of similar nature, scale and complexity. S/he shall be in-charge of pavement design and supervision of all works regarding pavements for both BRT corridor and off-corridors. Experience of working for at least 5 (five) years in countries with



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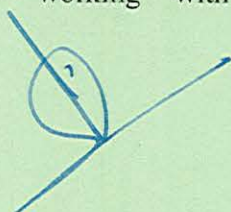
similar conditions.

Educational Qualification: Shall be a qualified Civil Engineer, preferably with master's degree in civil engineering or relevant subject (professional qualification recognized internationally). Experience and knowledge of innovative practices in pavement designs will be an added advantage.;

- 1.5 **Senior Procurement Specialist:** At least fifteen (15) years of professional experience in procurement of works and services, out of which experience of at least twelve (12) years in urban infrastructure construction projects, including at least two (02) projects procured on a Design and Build (D&B) basis. S/he shall lead team of procurement engineers and shall be responsible for preparation of procurement documentation and assistance during entire procurement process during the project. Moreover, s/he will be tasked to plan and deliver capacity building training sessions for the Client's staff on the subject matter specifically on the Design and Build Contracts. Experience of working for at least 5 (five) years in countries with similar conditions, fluency in English language is mandatory and good knowledge of Urdu language will be an added advantage.

Educational Qualification: Shall be a qualified Civil Engineer, preferably with master's degree in civil engineering or construction management or relevant subject

(professional qualification recognized internationally). Experience and knowledge of working with World Bank procurement regulations will be preferred.



Phase 2: CONSTRUCTION SUPERVISION & DNP

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NON-KEY STAFF

The following non-key staff is deemed to be necessary to comply with the required scope of the design and supervision phases:

1.6 Urban Space Management Specialist: At least ten (10) years of professional experience in implementation and management of urban projects having experience in at least two (2) projects of similar nature, scale and complexity. S/he must have a master's degree in urban planning with technical specialization in parking studies, design of on-street and off-street parking facilities, and knowledge of technologies and systems for administering parking charges, and enforcing parking regulations.

Educational Qualification: Shall be a qualified Urban Planner and/or Civil/ Transportation Engineer, (professional qualification recognized internationally);

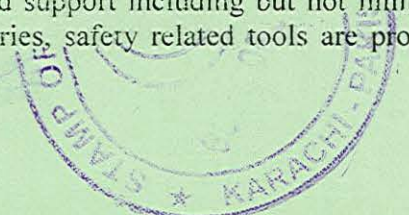
1.7 Senior Traffic Engineer: With at least fifteen (15) years of professional experience in traffic engineering for Urban roads and Mass Transit facilities. S/he will possess expert knowledge of traffic engineering principals and be proficient in the use of traffic modelling & simulation software having experience in at least three (3) projects of similar nature, scale and complexity. S/he shall work closely with the BRT design engineers and shall be responsible for undertaking classified movement surveys, review and advise on BRT service plan and travel demand model used to devise the route network and estimated ridership and simulation of the entire Yellow BRT Corridor (specifically micro-simulations at junctions). S/he shall also be responsible to advise on traffic management and safety matters along the corridor and during construction, working in close cooperation with Traffic Safety Engineer. Moreover, s/he will be tasked to plan and deliver capacity building training sessions for the Client's staff on traffic planning and engineering techniques in similar projects, according to the best practices adopted internationally.

Educational Qualification: Shall be a qualified Civil / Transport Engineer, preferably with master's degree in Transportation/traffic engineering or relevant subject (professional qualification recognized internationally);

1.8 Non-Motorized Traffic (NMT) Specialist: At least fifteen (15) years of professional experience out of which at-least ten (10) years in planning and designing of projects for NMT. S/he shall work closely with the road/BRT/traffic engineers and shall be responsible for planning and designs of NMT facilities with special emphasis on quality and safety aspects. Moreover, s/he will be tasked to plan and deliver capacity building training sessions for the Client's staff on the practical aspects of NMT according to the best practices adopted internationally.

Educational Qualification: Shall be a qualified Urban Planner and/or Civil / Transportation Engineer preferable with master's degree in civil / Transportation Engineering or relevant subject, (professional qualification recognized internationally);

1.9 Occupational, Health and Safety Specialist: At least fifteen (15) years of experience in managing occupational health and safety aspects during the execution of large civil works projects. S/he will be responsible for OHS aspects of work sites and shall submit monthly reports to the CRE on the status of implementation of mitigation measures, complaints received, and actions taken. The OHS specialist shall ensure that all necessary equipment (including personal protective equipment) and support including but not limited to provision of dedicated vehicles, office space and accessories, safety related tools are provided



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to the contractor's OHS manager during the contract. S/he will, jointly with the Social Safeguards Specialist and Environmental Safeguards Specialist assist in resolution of relevant complaints during project implementation. Moreover, s/he will be tasked to plan and deliver capacity building training sessions for the Client's and contractor's staff on the practical aspects of OHS, (design for safety, construction safety, accident prevention etc.) according to the best practices adopted internationally.

Educational Qualification: Shall have relevant qualification and certification recognized nationally and internationally;

1.10 **6 (Six) Assistant Resident Engineers:** At least 10 (ten) years of experience in supervision of road, bridges, infrastructure works. Reporting to the resident engineer of their respective packages, their duties shall include management of site operations, verifying that the contractor fulfils its duties and responsibilities in carrying out and completing the contract, maintaining all the records that are relevant to the performance of the contract.

Educational Qualification: Shall be a qualified Civil Engineer (professional qualification recognized internationally);

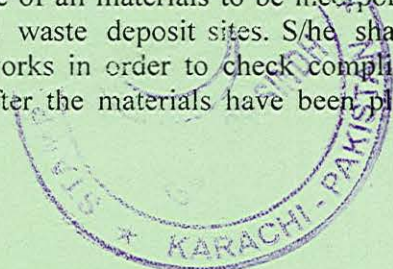
1.11 **Architect:** At least fifteen (15) years of professional experience, out of which at least ten (10) year experience in the architectural design and supervision of urban transit or relevant works. S/he shall be responsible for architectural (and visual) design and supervision of all elements for the BRT corridor and grade separated structures including stations and depots, with due consideration to the innovative practices and sustainable designs adopted internationally. Experience of working for at least 5 (five) years in countries with similar conditions and good knowledge of Urdu will be an added advantage.

Educational Qualification: Shall be a qualified Architect preferably with master's degree (professional qualification recognized internationally);

1.12 **BIM Specialist:** At least ten (10) years of international experience in design and construction of infrastructural works, out of which at least 7 (seven) years in implementation of BIM environment in designing and construction management of projects of similar nature, scale and complexity. S/he shall lead a team of engineers and shall be responsible for managing the design activities (specially design coordination) and tracking the performance during works execution towards the full application of the BIM. Moreover, s/he will be tasked to plan and deliver capacity building training sessions for the Client's staff in respect to application of BIM technology. Experience of working for at least 5 (five) years in countries with similar conditions. Fluency in English language is mandatory.

Educational Qualification: Shall be a qualified Architect/Civil Engineer, preferably with master's degree in civil engineering/architecture/construction management or relevant subject (professional qualification recognized internationally). Internationally recognized BIM Certifications will be preferred;

1.13 **Materials Engineer:** At least 15 (fifteen) years of experience in civil engineering works and relevant specifications, out of which at least 10 (ten) years as materials engineer in road/urban road works. Hers/his duties shall include, but not be limited to: scrutinize documents for imported materials or manufactured items to ensure compliance with specifications, test and record results on standard forms showing exact location of the materials in the works and their origin, certification of all materials to be used in the works in terms of quality and quantity. S/he shall also be in charge of all materials to be incorporated into the works, as well as utilization of material sites and waste deposit sites. S/he shall as well carry out tests during execution and on completed works in order to check compliance with specification requirements of the works operations after the materials have been placed



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in the field.

Educational Qualification: Shall be a qualified Civil/Materials Engineer (professional qualification recognized internationally);

1.14 **Drainage Engineer:** At least fifteen (15) years of professional experience in design and supervision of urban road drainage works. S/he must be well acquainted with the innovative drainage design practices in similar projects and demonstrate proven skill in modelling techniques in drainage design. S/he shall be responsible for the design and supervision of the drainage system in the project.

Educational Qualification: Shall be a qualified Civil Engineer (professional qualification recognized internationally);

1.15 **Geotechnical Engineer:** At least fifteen (15) years of professional experience in design and supervision of geotechnical works specially on infrastructure development works (roads, bridges etc.). S/he will oversee geotechnical aspects of the design and construction and shall work closely with the Structural, and Pavement Design engineers and provide inputs on geotechnical matters.

Educational Qualification: Shall be a qualified Civil Engineer, preferably with master's degree in civil/geotechnical engineering or relevant subject (professional qualification recognized internationally);

1.16 **Utilities Engineer:** At least 10 (ten) years of professional experience in design and supervision of utilities works. S/he shall work closely with the road/BRT design engineers and shall be responsible of utilities design and all operations on utilities during construction.

Educational Qualification: Shall preferably possess a Civil/Materials Engineer degree or relevant certification in the field of civil works (professional qualification recognized internationally);

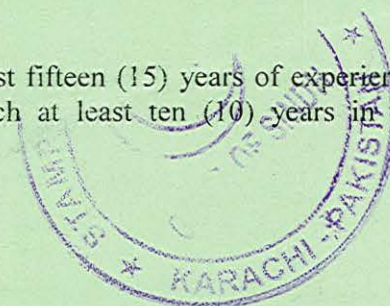
1.17 **2 (Two) Quantity Surveyors:** At least ten (10) years of experience in quantity surveying for civil engineering projects (road, bridges, buildings etc.), out of which at least seven (7) years for road projects. They will oversee initial re-measuring of contract works, measuring quantities of work done and certify completed quantities and for checking the accuracy of the estimated remaining quantities which should be included in the contractor's program of completion.

Educational Qualification: Shall hold a BTech (Civil) or Diploma of Associate Engineering (Civil) from a recognized institute;

1.18 **Traffic Safety Engineer:** At least fifteen (15) years of experience in the traffic and road safety aspects in design and supervision of urban road / transit works. S/he will oversee traffic safety measures for the design stage and implementation of all traffic safety measures during construction. S/he will also oversee traffic management during construction, including the review and approval of the Contractors' traffic management plans and following up its implementation. S/he will work in close cooperation and under guidance of Senior Traffic Engineer.

Educational Qualification: Shall be a qualified Civil/Transportation Engineer, preferably with master's degree in civil/transportation engineering with road safety credentials and professional qualification recognized internationally;

1.19 **Environmental Safeguards Specialist:** At least fifteen (15) years of experience in environmental management and monitoring, out of which at least ten (10) years in urban



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road/transit construction projects. S/he will oversee all environmental SG related activities and aspects of the design, and implementation and supervision of the environmental mitigation measures in accordance to GoS and WB policies, guidelines and procedures. These include but are not limited to: impact assessment, socioeconomic surveys, census, conducting meaning consultations, reporting, maintaining liaison with the Client / other key stakeholders. S/he will, jointly with the Social Safeguards Specialist and Occupational Health and Safety (OHS) Specialist assist in resolution of relevant complaints during project implementation. In addition, the Consulting team will designate appropriate staff (preferably site engineer) as Environmental Focal Person at each site to monitor and ensure SG compliance at field/site level.

Educational Qualification: Shall be a qualified civil/environmental engineer, preferably with master's degree in civil/environmental engineering or relevant subject (professional qualification recognized internationally);

1.20 Social Safeguards Specialist (Resettlement Expert): At least ten (10) years of experience in the social issues, out of which at least seven (7) years in urban road/transit construction projects. S/he will be in charge of all social aspects of the works, and implementation of social mitigation measures. S/he will monitor all the social SG related activities and aspects of the design and compliance requirements in accordance with applicable GoS and WB policies and procedures related to resettlement and grievance management. These include but are not limited to: impact assessment, socioeconomic surveys, census, conducting meaning consultations, reporting, maintaining liaison with the Client / other key stakeholders S/he will, jointly work with the Environmental Safeguards Specialist and Occupational Health and Safety (OHS) Specialist, during project implementation. In addition, the Consulting team will designate appropriate staff (preferably site engineer) as Social Focal Person at each site to monitor and ensure SG compliance at field/site level

Educational Qualification: Shall be qualified in Social Sciences, preferably with master's degree in social sciences or relevant subject (professional qualification recognized internationally);

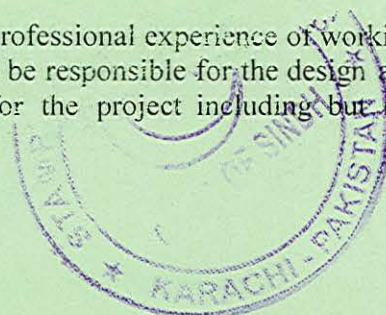
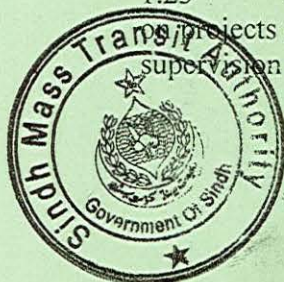
1.21 Project Controls Expert: At least fifteen (15) years of experience in similar complexity and budget projects. S/he must possess knowledge to work on internationally recognized project controls software and have a good handle of project reporting methods. S/he will assist the CRE and other key staff in project controlling activities, and assessment and mitigation of project risks associated with cost, schedule or scope change.

Educational Qualification: Shall be a qualified Engineer, preferably with master's degree in construction management or relevant subject (professional qualification recognized internationally);

1.22 Electrical Engineer: At least ten (10) years of professional experience of working on projects of similar nature, scale and complexity. S/he shall be responsible for the design and supervision of all electrical engineering works for the project including but not limited to the street lightning, coordination with the ITS consultant, supply of electricity to stations/depots, with due consideration to the renewable energy and innovative practices adopted internationally.

Educational Qualification: Shall be a qualified Electrical Engineer (professional qualification recognized internationally);

1.23 Mechanical Engineer: At least ten (10) years of professional experience of working on projects of similar nature, scale and complexity. S/he shall be responsible for the design and supervision of all mechanical engineering related works for the project including but not



limited to the stations, depots, pedestrian bridges, management of drainage in underground structures, lifts & escalators, with due consideration to the innovative practices adopted in projects internationally.

Educational Qualification: Shall be a qualified Mechanical Engineer (professional qualification recognized internationally);

1.24 **HVAC (Heating, Ventilation and Air Conditioning) Engineer:** At least ten (10) years of professional experience of working on projects of similar nature, scale and complexity. S/he shall be responsible for the design and supervision of all HVAC equipment and facilities related works for the project including but not limited to the stations, depots, pedestrian bridges, lifts & escalators, with due consideration to the innovative practices adopted in projects internationally.

Educational Qualification: Shall be a qualified Mechanical Engineer (professional qualification recognized internationally);

1.25 **6 (six) Site inspectors:** At least ten (10) years of professional experience of working on projects of similar nature, scale and complexity. They shall provide assistance and support to SRE and Assistant Resident Engineers, and also monitor and report to corresponding engineers in respect to execution of: all civil works, works organized in shifts, key construction activities (scaffolding, reinforcing, concreting, paving, drainage, etc.), materials sampling and testing, measurements.

Educational Qualification: Shall be a qualified Civil Engineer (professional qualification recognized internationally).

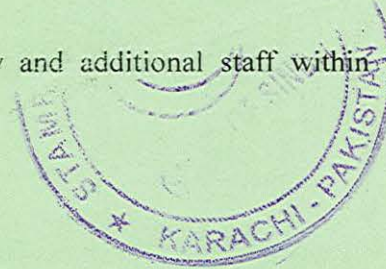
Although indicative, the Consultants are encouraged to maintain and/or improve the non-key staff requirements. Proposals with staffing variations of non-key positions than the above specified must provide suitable justification for the staffing replacing arrangement. The Consultants are also expected to maintain a minimum twenty number of trainee professionals (fresh graduates from local universities accredited by HEC Pakistan).

In addition to the personnel designated above, the Consultant shall determine the additional technical staff requirements for the assignment (engineers, procurement assistants, contract management assistants, quantity surveyors, utility coordinators, surveyors, laboratory technicians, etc.) to assist with *simultaneous* preparation of Detailed Design for Yellow BRT Corridor and off-corridors, and on-site supervision of the works (considering the project completion timelines and expected start of construction of the 1 km bridge under Design-Build contract), as well as administrative and support staff. All costs for the additional technical staff, administrative and support staff shall be included in the rates of non-key staff.

Some *important considerations* are as follow:

- (i) Senior Urban Road & BRT System Expert/Team Leader Design, Senior BRT System Design Expert, Senior Procurement Specialist, Chief Resident Engineer/Team Leader Construction and Senior Contract Management Specialist need to be from the **Lead firm and based in Karachi** for minimum eighty percent (80%) of their required person months as mentioned in the Table 7.
- (ii) The Consultant must provide Curriculum Vitae (CV) and certified copies of highest education certificates for *all key staff* in the proposal, *including duration in person-months for which the staff will be deployed under the contract.*

The Consultant is not required to submit CVs of non-key and additional staff within the



proposal, but these personnel shall be subject to prior approval of the Client from start of services. Generally, the support technical staff should possess education relevant for the nominated position, have at least 5 (five) years of experience, out of which at least three (3) years in road/urban road and infrastructure projects and be fully available to the Consultant for the whole duration of the design and/or supervision services.

- (iv) The Consultant will provide a *backstopping pool of expatriate and/or local specialists* to cover special needs arising under such disciplines as geology, hydrology, geotechnical, structures, pavements, contract management, etc.
- (v) The Consultant should allow for a maximum of 6 (six) *person-months during design preparation and 18 (eighteen) person-months backstopping during supervision*, but CVs are not required to be submitted with the proposal. These personnel shall be subject to prior approval of the Client before deployment.
- (vi) Backstopping specialists are considered as non-key staff and will be paid according to time spent at the field. These specialists should have at least 20 (twenty) years of experience, out of which at least 10 (ten) years in urban road/mass transit and infrastructure construction projects. The Consultant's supervision staff shall be available to move to the works site with the commencement of the works contract(s), while the part of the team responsible for design and procurement shall be available from the commencement of services.

Points of Discussion as agreed during the Negotiations: During the negotiations it was discussed that the social charges (mentioned in the breakdown of fixed monthly remunerations indicated in the Model Form, in financial proposal) shall be entitled to all the proposed employees of the Consultants on the Project. The Consultant agreed to this.



IMPLEMENTATION ARRANGEMENTS

DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

The Client has constituted a PMT for liaison, coordination and guidance to the Consultant for the assignment. PMT will provide all possible assistance and information as may be reasonably requested by the Consultant to carry out his obligations.

PMT, consisting of appropriate experts headed by a Project Director and to be assisted by the various Directorates of the SMTA, will have the overall responsibility for implementing the KMP. The PMT is being staffed by: a project director, a deputy project director, liaison officer, civil engineers, a mass transit specialist, a traffic engineer, a financial management specialist, a fully accredited accountant, a procurement and contract management specialist, an environmental specialist, a social development specialist, a gender specialist and a communication specialist.

Through the construction contracts, the Consultant shall be provided with:

- (i) Fully furnished and equipped site office containers at each construction site (works contract), for members of the supervision team, including maintenance, water, electricity, telecommunication services, high-band Internet connection, office supplies and consumables. Containers will comprise of at least 5 (five) working places and toilette facilities, and will be located conveniently within the site to serve as field offices for members of the supervision team;
- (ii) Furnished laboratory, including surveying equipment, sampling equipment, laboratory equipment and accessories, maintenance and operation. Laboratory will be equipped for testing of raw materials and products for soils, asphalt and concrete. All equipment has to be accredited according to local rules. Laboratory will be conveniently located at the site and will be available for performance of the contractor's preliminary and ongoing testing, as well as control testing by the Consultant. The Consultant does not have to provide his own staff for laboratory (contractor's responsibility), but the Consultant must have his own staff to monitor, check and validate the testing.

After commencement of the works contract, the Client will organize through the construction contract, maintaining and cleaning for the above listed facilities of the Consultant. This includes provision of all necessary cleaning equipment, rubbish bins and materials as well as provision of liquid soap for hand washing, dish washing, etc., lavatory cleaner and brushes, toilet paper, daily provision of clean hand towels, fly spray, extermination of any rodents and any other such incidentals as the Consultant may reasonably require for maintaining decent conditions for the operations of the offices. Eventual repair works for the facilities are also included.

For the whole duration of the services, the Consultant shall plan and cost support of its team, by providing: fully furnished office space (apart from the above listed facilities at sites and laboratory) either close to the site or to the PMT office (also including a conference room with at least 25 (twenty-five) seating places), equipment, computer hardware and software, communication, office stationary, printing and copying facilities, local and international transport, housing, etc.

The Client will assist the Consultant to:



- (i) Obtain formal consent from outside authorities or persons having rights or powers in connection with the works or the site thereof;
- (ii) Obtain ministerial orders, sanctions, licenses and permits in connection with the works;
- (iii) Register any non-national senior staff with the relevant engineers' board (or similar), if required.

Points of Discussion as agreed during the Negotiations: Referring to Reponse # 08 (in the responses issued on 21 December 2020) the Consultant needs to arrange their own transportation including vehicle maintenance, fuel, drivers, etc and the cost needs to be included within the reimbursement cost of the consultant's proposal. During the negotiations, it was agreed that the possibility to obtain these vehicles on lease terms rather than rental (as the case is in the financial proposal) will be explored and these vehicles be handed over to the Client at the end of project duration. It was also agreed that given this option is utilized, any additional financial implications to the proposed rental costs will be reimbursed to the Consultant.

Design Review and Road Safety Audit

The Client shall arrange for the review of the Detailed Design for both Yellow BRT Corridor and off-corridors immediately upon submission of relevant deliverables. The Consultant is obliged to follow the reasonable and implementable findings of the Detailed Design review so that the Client would be able to receive approval of the design and implement the works. If deemed to be necessary, the Consultant will be invited to attend meetings with the review committee.

The Client shall arrange for performance of the Road Safety Audit (RSA) of the Yellow BRT Corridor and off-corridors through an independent detailed systematic and technical safety check relating to the design characteristics of a road infrastructure. The road safety auditor shall be an independent person/entity outside the team of experts who were involved in the design or design review of the subject project. The Client will hire the independent Road Safety Auditor under a separate contract. The auditor will be encouraged to interact with the E&S and HS Specialists, and vice versa, for integrating environmental and safety recommendations in SG documents.

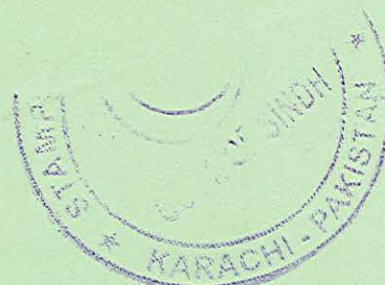
The third-party RSA would be practically performed in three stages, namely:

- (i) **RSA of the Detailed Design** prepared by the Consultant to evaluate final geometric design features, traffic signing and pavement marking plans, lighting plans, landscaping, intersections' details, facilities for other participants in traffic and operation, drainage, guardrails, and other roadside objects;
- (ii) **RSA of the executed work during the construction stage** to evaluate execution of geometric design features, traffic signing and pavement marking plans, lighting plans, landscaping, intersections' details, facilities for other participants in traffic and operation, drainage, guardrails, and other roadside objects. It will also cover the audit of activities performed by the contractors in the field during the works performance in terms of compliance with the Detailed Design, TMP, and legal and regulatory defined procedures;
- (iii) **RSA post completion of construction work** to suggest further improvements in the as-build infrastructure which the contractor shall rectify during the DNP.

Principally, the audit will follow the RSA Guideline issued by the World Road Association (2007).

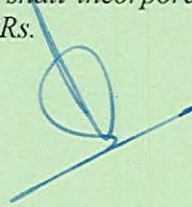


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The Consultant will ensure that results from RSAs are reflected in the detailed design, during construction during the DNP and in SG documents where appropriate.

Points of Discussion as agreed during the Negotiations: During the negotiations, the Consultant ensured that their designs will follow all the required safety measures, they will welcome independent safety reviews and shall incorporate relevant/agreed recommendations, where needed, in compliance with the TORs.



DURATION OF SERVICES

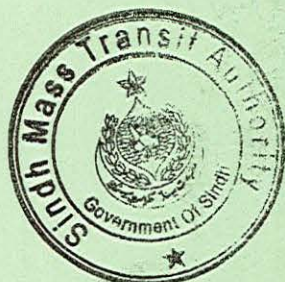
The engagement shall be deemed to have started on execution of the agreement and shall terminate at the completion of the DNP when the final inspection of all works has been done and the Consultant has fulfilled all his obligations, whatever comes later.

Estimated duration of the services is **60 (sixty) months**, which comprise of **12 (twelve) months of Detailed Design preparation (including review and revision) and procurement phase, 36 (thirty-six) months during construction and 12 (twelve) months after completion of works**, i.e. during the DNP with the Consultant's intermittent input to check continuous quality and actual performance of the works.

In view of the tasks to be achieved, it is anticipated that staff input will be **203 key staff months**, as well as **931 non-key staff months** (Table 7).

Table 7 Estimated staff input [person-months]

Team member	Indicative person-months		
	Design and procurement	Construction	DNP
A. Key staff			
Senior Urban Road & BRT System Expert / Team Leader Design (1)	12	3	-
Senior BRT Design Expert (1)	12	3	-
Senior Structural / Bridge Design Engineer (1)	9	3	-
Senior Pavement Design Engineers (1)	6	6	-
Senior Procurement Specialist (1)	9	-	-
Chief Resident Engineer / Team Leader Construction (1)	-	30	6
Resident Engineers (2)	-	66	9
Senior Contract Management Specialist (1)	2	24	3
Sub-total key staff (A)	50	135	18
B. Non-Key staff			
Project Manager (1)	6	12	6
Urban Space Management Specialist (1)	6	-	-
Architect (1)	6	12	-
Senior Traffic Engineer (1)	9	9	-
BiM Specialist (1)	9	18	2
OHS Specialist (1)	2	30	-
Assistant Resident Engineers (6)	-	216	12
Materials Engineer (1)	-	30	-
Drainage Engineer (1)	6	12	-
Geotechnical Engineer (1)	6	18	-
Utilities Engineer (1)	6	12	-
Quantity Surveyors (2)	6	60	-
Traffic Safety Engineer (1)	6	30	-
Environmental Safeguards Specialist (1)	5	30	-
Social Safeguard Specialist (1)	5	30	-
Project Controls Expert (1)	3	30	-



Electrical Engineers (1)	3	12	2
Mechanical Engineers (1)	3	12	2
HVAC Engineer (1)	3	12	2
NMT Specialist (1)	5	3	-
Site Inspectors (6)	-	216	6
Sub-total non-key staff (B)	95	804	3
Total key and non-key staff (A+B)	145	939	5

The Consultant should consider the prospective peaks of activities and ensure the adequacy of staffing levels during such periods, and, at the same time, periods with low productivity levels should not be un-economically over-staffed. The objective is that the Consultant should propose to assign team that will be best suited to the methodology of its design services, supervision and management systems. The Consultant should also consider the added value that will be provided by its organization.

Details of staffing levels will be agreed through the course of the assignment with the Client depending on the services and works currently in progress. The Consultant has to perform this assignment mainly in the field in *Karachi*. However, some work of the Consultant during preparation of Detailed Design and procurement assistance may be undertaken at their home office with the *consent* of the Client.

It should be noted that the Consultant shall provide its services during construction in the field according to the contractor's work schedule, which may include work during *seven* (7) days a week. *Nightshifts* may be expected as well. The Consultant will not be entitled to any overtime payment.



CODE OF CONDUCT

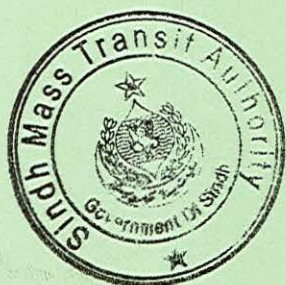
The Consultant shall submit the Code of Conduct that will apply to the Consultant's Key Experts and Non-Key Experts, to ensure compliance with good Environmental, Social, Health and Safety (ESHS) practice. In addition, the Consultant shall submit an outline of how the Code of Conduct will be implemented. The successful Consultant shall be required to implement the agreed Code of Conduct upon contract award. The issues to be addressed in the Code of Conduct include:

- a. Compliance with WB Safeguard Policies, WBG EHS guidelines, applicable laws, rules, and regulations
- b. Compliance with applicable health and safety requirements to protect the local community (including vulnerable and disadvantaged groups), the Consultant's Experts, the Client's personnel, and the Contractor's personnel, including sub-contractors and day workers (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment)
- c. The use of illegal substances
- d. Non-Discrimination in dealing with the local community (including vulnerable and disadvantaged groups), the Consultant's Experts, the Client's personnel, and the Contractor's personnel, including sub-contractors and day workers (for example, on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status)
- e. Interactions with the local community(ies), members of the local community (ies), and any affected person(s) (for example to convey an attitude of respect, including to their culture and traditions)
- f. Sexual harassment (for example to prohibit use of language or behavior, in particular towards women and/or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate)

The Code of Conduct should be written in plain language and signed by each Expert to indicate that they have:

- a. received a copy of the code;
- b. had the code explained to them;
- c. acknowledged that adherence to this Code of Conduct is a condition of employment; and
- d. understood that violations of the Code can result in serious consequences, up to and including dismissal, or referral to legal authorities.

A copy of the code shall be displayed in the Engineer's office. It shall be provided in appropriate languages.



APPENDIX B - KEY EXPERTS



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FORM TECH-6: Team Composition, Assignment, and Key Experts' input Phase 1

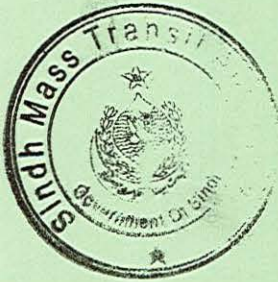
N°	Name	Position	Expert's input (in person /month) per each Deliverable (listed in TECH-5)												Total time-input (in Months)		
			D-1		D-2		D-3		D-4		D-5		D-6		Home	Field	Total
KEY EXPERTS																	
K-1	Bahjat Ghandour	Senior Urban Road & BRT System Expert / Team Leader Design	[Home] [Field]	0.5		2		1.5		1.5		1.5			3	9	12
K-2	Claudio Macedo	Senior BRT Design Expert	[Home] [Field]	0.5		2		1.5		1.5		1.5			3	9	12
K-3	Gamal Helmy	Senior Structural / Bridge Design Engineer	[Home] [Field]	1		1.5		4.5		1			0.5		8.5	0.5	9
K-4	Islam Mamdouh	Senior Pavement Design Engineers	[Home] [Field]	0.5		1		3.5		0.75					5.75	0.25	6
K-5	Ibrahim Haddad	Senior Procurement Specialist	[Home] [Field]							2		3	4		2	7	9
K-6	Bilal Azam	Senior Contract Management Specialist	[Home] [Field]							2					2	0	2
Subtotal															24.25	25.75	50
NON-KEY EXPERTS																	
N-1	Rehan Zamin	Project Manager	[Home] [Field]	0.5		1		3		1		0.5			0	6	6
N-2	Tayyabah Majid	Urban Space Management Specialist	[Home] [Field]					6							0	6	6
N-3	Sameh ElAgawani	Architect	[Home] [Field]					6							6	0	6
N-4	Abdurahman Harb	Senior Traffic Engineer	[Home] [Field]	0.5		4		4							8.5	0.5	9
N-5	Amr Abdel Hal	BIM Specialist	[Home] [Field]					7		1		1			9	0	9
N-6	Muhammad Umer	Drainage Engineer	[Home] [Field]	0.5		0.5		5							0	6	6
N-7	Walid Hammad	Geotechnical Engineer	[Home] [Field]			0.5		5.25							5.75	0.25	6
N-8	Irfan Akram	Utilities Engineer	[Home] [Field]	0.5		1		4.5							0	6	6
N-9	Ali Ayyoubi	Traffic Safety Engineer	[Home] [Field]	1				5							6	0	6
N-10	Muhammad Ramzan	Environmental Safeguards Specialist	[Home] [Field]					4		1					0	5	5
N-11	Saeed Hussain	Social Safeguard Specialist	[Home] [Field]					4		1					0	5	5
N-12	Hassan Hamdy	Electrical Engineer	[Home] [Field]	0.5				2.5							3	0	3
N-13	Ahmed Abd Rahman	Mechanical Engineer	[Home] [Field]	0.5				2.5							3	0	3
N-14	Hussein Shewar	HVAC Engineer	[Home] [Field]	0.5				2.5							3	0	3
N-15	Martin Wedderburn	NMT Specialist	[Home] [Field]	0.5				4							4.5	0.5	5
N-16		Support Engineers (DAR)	[Home] [Field]	2		4		21		5		3		1	37	0	37
N-17		Support Staff (DAR)	[Home] [Field]	2		4		21.5		6		3		1	37.5	0	37.5
N-18		Support Engineers (NESPAK)	[Home] [Field]	0.5		5		68.25		6		4			0	83.75	83.75
N-19		Support Staff (NESPAK)	[Home] [Field]	0.5		8		52.75		6		4			0	71.25	71.25
Subtotal															123.25	190.25	313.5
Total															147.5	216	363.5

Figure TECH 6

1. For Key Experts, the input should be indicated individually for the same positions as required under the Data Sheet (TC21.1).
2. Months are counted from the start of the assignment/mobilization. One (1) month equals twenty two (22) working (billsale) days. One working (billsale) day shall be not less than eight (8) working (billsale) hours.
3. "Home" means work in the office in the expert's country of residence. "Field" work means work carried out in the Client's country or any other country outside the expert's country of residence.

Full time input
Part time input

Home
Field



Form TECH 6
(CONTINUED)
CURRICULUM VITAE (CV)

Position Title and No.	Senior Urban Road and Bus Rapid Transit System Expert - Team Leader
Name of Expert:	BAHJAT A. GHANDOUR
Date of Birth:	22/10/1957
Country of Citizenship/Residence	Lebanese, Turkish / TURKEY

Education:

BSc, Civil Engineering, Kansas State University, USA, 1980

Employment record relevant to the assignment:

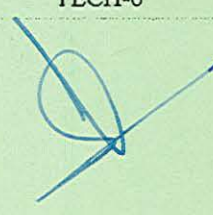
Period	Employing Organisation and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
1988 to date	Dar Al-Handasah Consultants (Shair and Partners) Senior Transportation Engineer/Head of Department	Turkey	Responsible for the management of all project activities
1984 - 1988	Dar Al-Handasah Consultants (Shair and Partners) Civil Engineer	Turkey	In charge of supervising the implementation of a construction management programme, including computerised monitoring and control of construction activities and resources using commercial software and in-house programmes
1980 - 1984	Dar Al-Handasah Consultants (Shair and Partners) Civil Engineer	Turkey	Participated in the design; development of computer models; and preparation of Master Plans, tender documents, cost estimates and bills of quantities

Membership in Professional Associations and Publications:

Union of Chambers of Turkish Engineers and Architects (TMMOB), since 2005. Registration No.63323

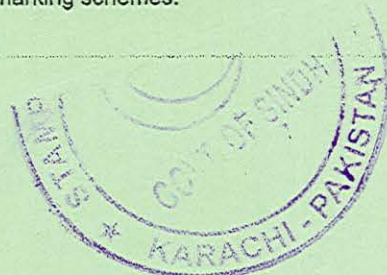
Language Skills	Reading	Writing	Understanding
Arabic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Turkish	Good	Good	Good

Adequacy for the Assignment:

Detailed Tasks Assigned: Refer to TECH-5 and TECH-6	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	Since 1980 With Dar Al-Handasah Consultants (Shair and Partners), Transportation Dept.
	1988 to date Senior Transportation Engineer/Head of Department <u>Project Manager</u> Responsible for the management of all project activities for the following projects: <ul style="list-style-type: none"> - Rehabilitation of Luanda - Lobito National Road (EN100), Angola. Feasibility study, detailed design and tender documents for the rehabilitation of 6 sections of the existing National Highway EN100, connecting Luanda and Benguela. The sections extend over 395 km between Cabo Ledo and Lobito. - Assir - Jizan Road, Saudi Arabia. Detailed design and tender documents for a 125 km 2-lane dual carriageway main road (design speed: 90 km/h) through a very rough terrain especially in the first 30 km (mainly escarpment) thus requiring 11 twin tunnels (total length of 4,500 m), 55 bridges (total length of 8,800 m) and 10 interchanges. In the locations of bridges and tunnels the road is of 3 lanes in each direction. The design also covered all pavement works, and signing and marking schemes.



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- 12 of July Road, Angola. Detailed design, tender documents and supervision of construction for a 1 km long, 2-way road interconnecting N'Gola - Kiluanje Road and with Lueji - Anconda Road. The scope covers parking areas and sidewalk on both sides of the road, drainage, signing and marking, street lighting and other infrastructure services.
- Infrastructure Consultancy Services for the Energy Centre and Car-Park at Hamad Bin Khalifa Medical City, Qatar. Detailed design and tender documents for all infrastructure components, including accesses, internal roads, parking areas, etc.
- **King Saud University Internal Transit System, Saudi Arabia.** Feasibility studies, detailed design of civil works and utilities diversions, concept and functional design of the transit system, and preparation of tender documents for the East Loop (Line 1) of a total length of 9.5 km with 22 stops/stations, and West Loop (Line 2) of a total length of 7.2 km with 19 stops/stations. Both lines share a common section of 2.7 km that serves 10 stops/stations. Total number of stations: 31.
- **Rehabilitation of Luanda Roads - Phase 3, Angola.** Detailed design, tender documents and supervision of site works for the reconstruction of three urban roads in Luanda namely, Quinta Avenida Road, a 2.25 km long single carriageway with a 3.5 m wide lane in each direction, 2.5 m wide right side parallel parking lane in addition to a right-in right-out junction with Estrada de Catete Road, an at-grade railway crossing and a roundabout towards the northern end of the alignment; Tourada-Cassequel-Van-Duném Loy Road, a 4.5 km long single carriageway with a 3.5 m wide lane in each direction, 2.5 m wide right side/left side parallel parking lanes, 5.6 m wide right side angular parking in addition to a right-in right-out junctions at both ends of the alignment and three roundabouts in between; and Van-Duném Loy-Calemba II Road, a 3.5 km long single carriageway with a 3.5 m wide in each direction, and right-in right-out junctions on both ends.
- Rehabilitation of Tunguu - Makunduchi, Fumba - Kisauni and Mkoani - Chake Roads, Tanzania. Feasibility studies, detailed design and tender documents for the rehabilitation and upgrading (including a dualisation option) of three single carriageway roads of a total length of 103.5 km.
- Al Khail Mall at Jumeirah Village Triangle - Access Roads and Bridges, United Arab Emirates. Detailed design, tender documents and supervision of construction for 4 flyovers of a total length of 880 m with a total ramp length of 345 m and 2,251 m of surface connecting roads to Al Khail Mall.
- Versova Bandra Sea Link (VBSL), India. Detailed design and tender documents for a sea link consisting of 9.6 km long, dual 4-lane carriageway main bridge; one cable-stayed bridge (0.3 km long, dual 4-lane carriageway); three balanced cantilever bridges (0.1 km long, dual 4-lane carriageway each); Bandra Connector dual 2-lane carriageway with 1.17 km long trumpet interchange; Otters Club Connector dual 3-lane carriageway with 1.8 km long trumpet interchange; Juhu Koliwada Connector dual 2-lane carriageway with 2.8 km long trumpet interchange; and Versova Connector dual 3-lane carriageway with a partial 1.8 km long trumpet interchange for future extension of the main bridge. The scope covered a total of 5 toll plazas and all related infrastructure services.
- Bridges along Lagos Airport Road Project, Nigeria. Preliminary design, detailed design and tender documents for a new 600 m long alignment of which 75 m are on bridge, a U-Turn bridge before the junction of Murtala Muhammed Airport Road and Apapa Oshodi - Oworonshoki Expressway, and a 1 km long flyover connecting the Airport Road to Abeokuta Expressway. The bridges consist of dual carriageways with 2 lanes in each direction. The scope also includes the re-arrangement of 4 at-grade crossings all to be signalised, 2 culverts, bus stop, street lighting and MSE wall at bridge ramps.
- Consultancy Services for Pen Cinema Bridge, Nigeria. Detailed design and tender documents for a 1.75 km long alignment with 400 m on bridge, 2-lane dual carriageway bridge along Agunbiade Street/Oba Ogunji Road to cross an existing railway line as well as the Old Abeokuta and Iju Ishaga Roads, with a right ramp joining old Abeokuta Road. The scope also includes the re-arrangement and signalisation of 4 at-grade crossings, bus stop, street lighting, MSE walls at bridge ramps and the re-alignment of part of Old Abeokuta road (2-lane dual carriageway).
- Kitamba - Soyo Road, Angola. Detailed design and tender documents for a single carriageway road with a length of 3.15 km and a width of 8.2 m, connecting Soyo City to an under construction power plant.



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- AJAH Flyover, Nigeria. Preliminary design, advanced concept design, final design, and tender documents for a 4-lane flyover with approach roads at AJAH Roundabout on Epe - Lekki Expressway, including road geometric design, junction improvement, traffic signal design, utility disposition, etc.
- Kima Kienda Road, Angola. Detailed design of a 3 km, 3-lane one way road part of the access roads to the new airport in Luanda. The road section comprises a dedicated truck lane, parking lane, and 2 lanes for light vehicles. The scope covers utilities disposition, pavement design, culverts and drainage system and street lighting in addition to ramp/bridge overpassing the Kima Kienda Road to allow direct access from Kifangondo - Cacucaco Highway to Lueji Anconda Road.

Responsible for the geometric design, alignment selection, and design of roadworks, including coordination with other disciplines, preparation of specifications, cost estimates, bills of quantities and other technical documents, for the following projects:

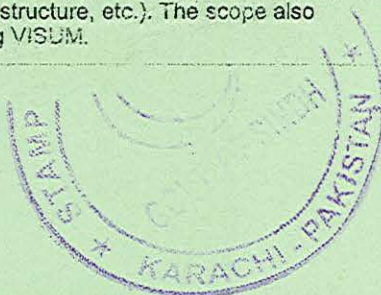
- **Project Management for Riyadh Transit System, Saudi Arabia.** Project and contract management, and construction supervision for 3 dedicated BRT lines of total length of 67 km with 53 lateral-platform stations, 27 pedestrian bridges, 3 BRT Terminus stations, 4 park-and-ride facilities, 19 Community Bus Stop (CBS) lines - 977 CBS stops, feeder bus system connecting over 58 feeder lines to the Public Transport System - 1,753 feeder stops, Transportation Control Centre (TCC) for the complete transport network (including the metro system), and an Intelligent Transport System (ITS), comprising Automated Vehicle Management, Real Time Passenger Information, Automated Fare Collection System, Bus Priority at Intersections, and Journey Planner System.
- **Streetscape and Station Design for Riyadh Bus Rapid Transit (BRT) Network, Saudi Arabia.** Detailed designs for the streetscape works (hard and soft) of sidewalks along entire BRT corridors (65 km). Works include creating a pedestrian-friendly environment that is consistent with the vision of the new public transport system. The scope also include the design of 2 terminal stations, 55 in-line stations, 4 park-and-ride sites, 35 pedestrian bridges, 4 types of community bus shops, and 1 type of feeder bus stops.
- **Lubango Infrastructure Project, Angola.** Detailed design, tender documents and supervision of construction of a 100 km long urban road network with 2 lanes in each direction at a maximum width of 37 m, various infrastructure facilities in addition to the rehabilitation of existing bridges.
- **King Khaled International Airport Terminal Expansion and Refurbishment Programme - Terminals 3 and 4, Saudi Arabia.** Detailed design for the complete fit out of Terminal 3 and Terminal 4 including all civil works, finishes, MEP installations, escalators, and elevators in order to provide an enhanced level of service and expand the airport's processing capability. The main works comprise the complete fit out of Terminal 4, the complete fit out and expansion of the Terminal Link 3 departure level to provide a centralised check-in for Terminals 3 and 4, and the design and construction of additional mezzanine structural work inside the TL3 check-in hall (with all required fire, life, and safety aspects; elevators and escalators related to the metro connection; and finishes and MEP services). The project also includes the full upgrade, fit out, and conversion of Terminal 3 from a domestic to an international terminal. Moreover, the works include the replacement of existing escalators, elevators, and moving walkways throughout the Terminal 3 and Terminal Link 3 buildings; signage and wayfinding throughout Terminals 3 and 4 and Terminal Link building 3; a new roofing system for Terminals 3 and 4 and Terminal Link 3; a new film for existing glass panels on the landside of Terminals 3 and 4 and Terminal Link Building 3 to provide anti-shatter characteristics; and asbestos abatement in Terminal Link 3. Also, the project included upgrading of the existing signage systems and digital data system; and fitting out 550 m² of AOC Building at Terminal 5, including provision of furniture and equipment as well as constructing a ground services equipment and utility tunnel under Taxiway Tango.
- **Coca-Cola Arena, United Arab Emirates.** Detailed design (under BIM management) and supervision of construction for an indoor sports and multipurpose facility with a maximum capacity of 17,000 persons. The scope also covers external plaza, vehicular drop-off areas, surface car-parking for 1,300 vehicles, site accesses, and all infrastructure services.



- **Ultimate Expansion of Existing Passenger Terminal Building at Al Maktoum International (AMI), United Arab Emirates.** Detailed design, tender documents and supervision of construction for demolition, refurbishment and new construction works in order to bring the existing terminal building (5 million passengers/year) to a capacity that can enable Fly Dubai and other airlines to operate until the year 2022. This covers the modification and expansion of several parts of the departure areas, boarding lounges, arrival transfer area, arrival baggage reclaim area and landside car-park, including additions/modifications to the landside arrival and departure kerbs; addition of car-parking spaces; modifications to access roads, including road widening; and addition of traffic signals and road marking.
- **Zayed City Infrastructure, Abu Dhabi, United Arab Emirates.** Master plan review, preliminary and detailed designs, tender documents, and tender management for the infrastructure works in specific areas within the Zayed City. The scope included roads, traffic study (based on updates of the STEAM model) and road signage in addition to Stages 0, 1, 2 and 3 Road Safety Audits. A comprehensive public transport network was also planned with interfaces between the road network, light rail, metro, surface trams, high speed inter-city train and bus services.
- **Kifangondo/Funda Catete Corridor Infrastructure - Package 1, Angola.** Detailed design and tender documents for the upgrading of the existing road between Funda and Catete with a total length of 37.8 km in addition to the extension of Cacuo - Kifangondo Road with a total length of 3.9 km. The right-of-way varies between 30 m and 40 m with 2 lanes in each direction, and parking spaces on both sides in addition to a 3 m reservation on either side for future utility corridor in the 40 m stretch. The scope also includes a comprehensive stormwater drainage system.
- **Madinah Hajj City, Saudi Arabia.** Master plan, detailed design (under BIM management), tender documents, tender management, and supervision of construction for a township on a 1.6 million m² site located 3 km southwest of the Holy Prophet's Mosque in Madinah, envisaged to accommodate 120,000 pilgrims. The project comprises 82 four-star and five-star hotel towers; office towers; commercial mall with a basement for 2,200 cars; 2 mosques with a total capacity of 18,000 worshippers; hospital complex; and elevated light rail transit and bus stations of built-up area of 184,000 m² with a peak capacity of 84,000 pilgrims/hour. The project is complete with an internal road network, all infrastructure utilities and landscaping.
- **King Abdul Aziz International Airport, Saudi Arabia.** Project management, design review (under GIS and according to LEED Silver requirements), construction management and supervision for a new airport based on a new phased master plan up to the year 2035 (Phase 1 up to 2019), comprising a new passenger terminal complex (810,000 m²) with a capacity of 30 million passengers per annum, 80 millions in ultimate phase, to replace the existing North and South Terminals; facility design to cater for both domestic and international operations, A380 aircrafts and full hub capability with latest systems and equipment; **Haramain railway station and an automated passenger mover (APM) system**; airfield upgrading, new parallel taxiways, 3 aprons, control tower and related systems; state-of-the-art navigation aid and communication installations, FIDS, departure control, life safety aspects and public address systems; Baggage Handling System (BHS), support buildings and facilities, earthworks, complete landscaping, major utility networks, new landside roads, tunnels and interchanges; programme coordination for related projects, including fuel tank farm, Jet fuel supply line from Aramco to the fuel farm, Jet fuel hydrant network, 3 Load Centers, 2 Data centers, 4 radio sites, UHF VHF transmission station Airside fire station and training center, crisis management center, meteorological observation building, tree nursery, Smart multistory Carpark, employees and VVIP car park, capacity exceeding 22,000 cars, upgrading of existing terminals, sewage treatment plant; polishing plant; and planning and infrastructure and earthworks for a major landside commercial zone, complementing the main development.
- **Lagos Infrastructure Development (LID) Project, Nigeria.** Detailed design, tender documents, and supervision of construction for a mixed-use development comprising office facilities for 2,000 employees (43,270 m²), 200 residential apartments (60,000 m²), staff accommodation (12,000 m²), hotel (200 guestrooms, 20,000 m²), helipad, utility and service buildings, parking lots and car-park buildings (76,850 m²), and all infrastructure utilities (roads, pedestrian accesses, wet infrastructure, etc.). The scope also covered internal traffic modelling using VISUM.



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As System Analyst (1990-1994), in charge of developing an interactive design software applications, and using various CAD techniques (MOSS, DCA and AutoCAD) in different design stages for the following project:

- Tarsus - Mersin Toll Motorway, Turkey. Fast-track design, hydrological surveys and construction documents for 74 km of motorway and link roads, with 7 grade-separated interchanges, 49 bridges (including 3 railway bridges), 154 box-culverts and 3 toll plazas.

As Civil Engineer/System Analyst (1988-1990), responsible for the general supervision and monitoring of construction works and resources using OPEN PLAN and PRIMAVERA software, and developing user-friendly programmes using Dbase, Fortran and Basic, for the following project:

- Tarsus - Gaziantep (TAG) Motorway, Turkey. Design review, preparation of tender and contract documents, supervision of construction and provision of specialist structural analysis and geotechnical services (high rock cuts, embankments on soft soils using vertical drains, reinforced earth slopes and micro-piling under caissons) for a 200 km, dual 3-lane toll motorway (of which 27 km in 4 lanes) and 58 km of dual 3-lane connection roads, including 12 bridges, 158 overpasses and underpasses, 12 viaducts (total length of 5,225 m), 2 special viaducts consisting of Steel box Girders and Steel Deck (total length of 1,225 m, spans up to 100.17 m and pier height up to 129.12 m), 17 interchanges, 5 twin-tube tunnels totalling 5.3 km, retaining structures with heights up to 37 m, toll plazas, 8 parking areas, 4 service areas and 5 maintenance areas. Traffic management and toll area supervision are centrally controlled through variable message signing, CCTV, and communication links to each toll booth. The tunnels are D-shaped 3 lane twin tunnels with 17.6 m diameter. The natural excavation for the tunnels was done through the standard drill and blast method. The NATM (New Austrian tunneling method) method was applied, which is also known as the sequential excavation method. In addition, the project includes escape tunnels for pedestrians with 25 m² cross section.

1984 - 1988

Civil Engineer

In charge of supervising the implementation of a construction management programme, including computerised monitoring and control of construction activities and resources using commercial software and in-house programmes, for the following projects:

- Al-Qassim Road Network.
- Buraydah Ring Road, Saudi Arabia.

Site Engineer

In charge of the supervision of construction of all water-related appurtenances (pressure pipes, pumping stations, etc.) as applicable to the following project:

- Landscaping and Irrigation of Riyadh Ring Road, Saudi Arabia.

1980 - 1984

Civil Engineer

Participated in the design; development of computer models; and preparation of Master Plans, tender documents, cost estimates and bills of quantities, as applicable for the following projects:

- Laminkoto - Passimus Road, Gambia.
- Al-Hassa Housing, Phase I, Jordan.
- Kassoun Development, Syria.
- Jordan Valley Irrigation Project, Stage II, Uncontrolled Flows, Jordan.

Expert's contact information:

email: Bahjat.Ghandour@dar.com

Certification:

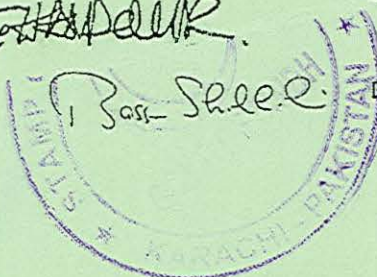
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank

Name of Expert: BAHJAT A. GHANDOUR

Date: 18/12/2020

Name of authorized Representative: BASSAM T. SHAKHSHIR

Date: 18/12/2020

Form TECH 6
(CONTINUED)
CURRICULUM VITAE (CV)

Position Title and No.	Senior Bus Rapid Transit System Design Expert
Name of Expert:	Claudio Macedo
Date of Birth:	03/02/1950
Country of Citizenship/Residence	Brazilian

Education:

BE, Civil Engineering - Mackenzie University, São Paulo, Brazil - 1975
Master of Transportation Engineering - University of São Paulo, Brazil - 1979

Employment record relevant to the assignment:

Period	Employing Organisation and your title / position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
2002 – to date	GPO SISTRAN Engenharia Ltda. Technical Director	Brazil	Technical Director/ Project Manager on BRT systems
1991 – 2002	Protran Engenharia Project Manager	Brazil	
1990 – 1991	CET – CIA Engenharia de Tráfego Transports and Administrative Resources Superintendent	Brazil	
1978 – 1990	Metrô – CIA do Metropolitano de São Paulo Maintenance Manager	Brazil	

Membership in Professional Associations and Publications:

Conselho Regional de Engenharia e Agronomia do Estado de São Paulo – CREA / SP

Other Relevant Training:

"Management of Research and development process" – PACTO/FEAUSP, São Paulo, 1989;
"Strategic Planning" – CET, São Paulo, 1990;
"UK Practice on Traffic Calming and Traffic Safety Audits" – USP/University of Leeds, São Paulo, 1997;
"Quality Management Program in Project Development" – SINAENCO/NGI, São Paulo, 1999;
"Construction Method for Engineering Structures" – SISTRAN/GPO, São Paulo, 2015;

Language Skills	Reading	Writing	Understanding
Portuguese	Excellent	Excellent	Excellent
English	Excellent	Excellent	Very Good
Spanish	Excellent	Excellent	Excellent



Adequacy for the Assignment:

Detailed Tasks Assigned: Refer to TECH-5 and TECH-6	Reference to Prior Work / Assignments that Best Illustrates Capability to Handle the Assigned Tasks
2013 – 2014	<p>Name of assignment or project: Noroeste BRT Year: 2013 - 2014 Location: Brazil Client: Empresa Metropolitana de Transportes Urbanos de São Paulo S/A – EMTU Main project features: Feasibility studies, conceptual, basic and detailed design (23,75 km) Positions held: Technical Director Activities performed: Leading the technical design team in the following activities:</p> <ul style="list-style-type: none"> - Feasibility Studies and Functional Design - Conceptual Design - Basic Design - Detailed Design including: <ul style="list-style-type: none"> o 23,75 km dedicated lines o BRT Bus stops, 2 Terminals, 1 depot o Architecture, MEP, etc. for all facilities o Urban Inception, geometry, structures, pavement, drainage, signalling, ITS, etc.
2013 – 2015	<p>Name of assignment or project: Guarulhos – São Paulo BRT Year: 2013 - 2015 Location: Brazil Client: Empresa Metropolitana de Transportes Urbanos de São Paulo S/A – EMTU Main project features: Feasibility studies, conceptual, basic and detailed design (3,9 km) Positions held: Technical Director Activities performed: Leading the technical design team in the following activities:</p> <ul style="list-style-type: none"> - Feasibility Studies and Functional Design - Conceptual Design - Basic Design - Detailed Design including: <ul style="list-style-type: none"> o 3,9 km dedicated lines with one Terminal o Architecture, MEP, etc. for all BRT bus stops and Terminal o Urban Inception, geometry, pavement, drainage, signalling, ITS, etc.
2009 – 2010	<p>Name of assignment or project: São Paulo Metropolitan Region BRT Program Year: 2009 - 2010 Location: Brazil Client: Empresa Metropolitana de Transportes Urbanos de São Paulo S/A – EMTU Main project features: Demand & supply studies, simulation models, alternatives analysis, proposals and recommendations. Positions held: Project Manager Activities performed: Managing all project activities</p>
2011 – 2012	<p>Name of assignment or project: "Corredor Perimetral Leste" Bus Rapid Transit Year: 2011 - 2012 Location: Brazil Client: Empresa Metropolitana de Transportes Urbanos de São Paulo S/A – EMTU Main project features: Preliminary technical and Feasibility Studies, operational and integration studies of a new BRT services with more than 80km length in São Paulo Metropolitan Area. Positions held: Project Manager Activities performed: Managing all project activities</p>
2015 – 2017	<p>Name of assignment or project: Corredor Perimetral Leste 2 - BRT Year: 2015 - 2017 Location: Brazil Client: SPTRANS (São Paulo – Transportes) Main project features: Basic and detailed design (35,25 km) Positions held: Technical Director Activities performed: Leading the technical design team in the following activities:</p> <ul style="list-style-type: none"> - Basic Design - Detailed Design including: <ul style="list-style-type: none"> o 35,25 km dedicated lines o BRT Bus stops, 1 Terminals, 1 depot o Architecture, MEP, etc. for all facilities



	<ul style="list-style-type: none"> o Urban Inception, geometry, structures, pavement, drainage, signalling, ITS, etc.
2011 – 2012	<p>Name of assignment or project: "Itaquá – Arujá" Bus Rapid Transit</p> <p>Year: 2011 - 2012</p> <p>Location: Brazil</p> <p>Client: Empresa Metropolitana de Transportes Urbanos de São Paulo S/A – EMTU</p> <p>Main project features: Preliminary technical, operational and integration studies of a new BRT services in São Paulo Metropolitan Area</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2018 – 2019	<p>Name of assignment or project: CPTM São Paulo. Project for Line 11</p> <p>Year: 2018 - 2019</p> <p>Location: Brazil</p> <p>Client: CPTM</p> <p>Main project features: Executive Projects for the Adaptation of the Stations: Mogi das Cruces, Guaianases, Estudantes, Antônio Gianetti Neto, Juniapeba e Braz Cubas.</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2018 – 2019	<p>Name of assignment or project: CPTM São Paulo. Project for Line 12</p> <p>Year: 2018 - 2019</p> <p>Location: Brazil</p> <p>Client: CPTM</p> <p>Main project features: Executive Projects for the Adaptation of the Stations: Aracaré and Eng. Manoel Felo.</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2013 – 2014	<p>Name of assignment or project: CPTM São Paulo. Project for Line 8</p> <p>Year: 2013-2014</p> <p>Location: Brazil</p> <p>Client: CPTM</p> <p>Main project features: Basic Projects for several modifications on Barra Funda Station</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2013 – 2014	<p>Name of assignment or project: CPTM São Paulo. Project for Line 8</p> <p>Year: 2013-2014</p> <p>Location: Brazil</p> <p>Client: CPTM</p> <p>Main project features: Basic and Executive projects for Leopoldina and Quitaúna Stations. All BIM project.</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2013 – 2014	<p>Name of assignment or project: CPTM São Paulo. Project for Line 8</p> <p>Year: 2013-2014</p> <p>Location: Brazil</p> <p>Client: CPTM</p> <p>Main project features: "Expresso Oeste-Sul" Suburban Rail Line Study - Functional engineering design, technical, environmental, economic, financial and institutional analysis for the feasibility study for implement a new commuter train service in São Paulo Metropolitan Area, including the concession modeling.</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2012 – 2012	<p>Name of assignment or project: LINE 9</p> <p>Year: 2012-2012</p>



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	<p>Location: Brazil Client: BROOKFIELD / TEGRA Main project features: Basic and Executive Design Project for the new João Dias Station Positions held: Project Manager Activities performed: Managing all project activates</p>
2011 – 2012	<p>Name of assignment or project: LINE 9 Year: 2011-2012 Location: Brazil Client: CPTM Main project features: Functional Estudios for the Adaptation and Urban Integration of the stations: Pres. Altino, CEASA, V. Lobos – Jaguaré – Cidade Universitária, Hebraica – Rebouças, Cidade Jardim, V. Olímpia, Berrini, Morumbi, Granja Julieta, Santo Amaro, Socorro, Jurubatuba, Primavera, Interlagos e Grajaú Positions held: Project Manager Activities performed: Managing all project activates</p>
2011 – 2011	<p>Name of assignment or project: LINE 9 Year: 2011-2011 Location: Brazil Client: CPTM Main project features: Functional Project for the Relocation of the CEASA Station. Positions held: Project Manager Activities performed: Managing all project activates</p>
2009 – 2010	<p>Name of assignment or project: LINE 9 Year: 2009-2010 Location: Brazil Client: CPTM Main project features: Morumbi Station Functional Project. Positions held: Project Manager Activities performed: Managing all project activates</p>
2009 – 2010	<p>Name of assignment or project: LINE 9 Year: 2009-2010 Location: Brazil Client: CPTM Main project features: Feasibility Studies for the new Track Construction between Jurubatuba Station and Cidade Universitaria Station. Positions held: Project Manager Activities performed: Managing all project activates</p>
2013 – 2013	<p>Name of assignment or project: LINE 7 Year: 2013 - 2013 Location: Brazil Client: CPTM Main project features: Basic and Executive Design Projects for Caieiras e Várzea Paulista Stations. All BIM project. Positions held: Project Manager Activities performed: Managing all project activates</p>
2011 – 2012	<p>Name of assignment or project: LINE 7 Year: 2011 - 2012 Location: Brazil Client: CPTM Main project features: Basic Project for the V. Aurora Station. Positions held: Project Manager Activities performed: Managing all project activates</p>
2012 – 2013	<p>Name of assignment or project: LINE 7 Year: 2012 - 2013 Location: Brazil Client: CPTM Main project features: Technical, Operational, Environmental and Feasibility Studies for a new commuter train link between Campinas Metropolitan area and Jundiaí. Positions held: Project Manager Activities performed: Managing all project activates</p>



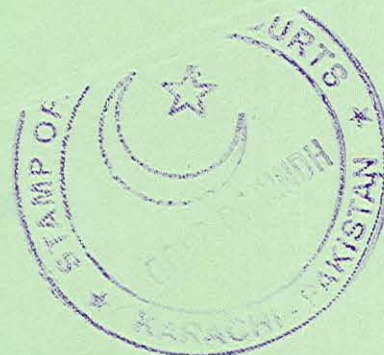
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2013 – 2014	Name of assignment or project: LINE 11 Year: 2013 - 2014 Location: Brazil Client: CPTM Main project features: Basic and Executive Design Projects for Guaianases Station Positions held: Project Manager Activities performed: Managing all project activates
2011 – 2012	Name of assignment or project: LINE 11 Year: 2011 - 2012 Location: Brazil Client: CPTM Main project features: Functional Project for the new Penha Station Positions held: Project Manager Activities performed: Managing all project activates
2011 – 2012	Name of assignment or project: LINE 12 Year: 2011 - 2012 Location: Brazil Client: CPTM Main project features: Basic Project of the Comendador Ermelino Station. Positions held: Project Manager Activities performed: Managing all project activates
2010 – 2011	Name of assignment or project: LINE 12 Year: 2010 - 2011 Location: Brazil Client: CPTM Main project features: Basic Project of the Jardim Romano Station. Positions held: Project Manager Activities performed: Managing all project activates
2010 – 2012	Name of assignment or project: LINE 12 Year: 2010 - 2012 Location: Brazil Client: CPTM Main project features: Basic and Executive Design Projects of the União de V. Nova Station. Positions held: Project Manager Activities performed: Managing all project activates
2010 – 2012	Name of assignment or project: LINE 12 Year: 2010 - 2012 Location: Brazil Client: CPTM Main project features: Basic Project of Functional Adaptation of the São Caetano Station. Positions held: Project Manager Activities performed: Managing all project activates
2010 – 2012	Name of assignment or project: LINE 12 Year: 2010 - 2012 Location: Brazil Client: CPTM Main project features: Basic Project of Functional Adaptation of the Santo André Station. Positions held: Project Manager Activities performed: Managing all project activates



2014 – 2019	<p>Name of assignment or project: Basic and Executive Project for Ipiranga Station. Line 15.</p> <p>Year: 2014 - 2019</p> <p>Location: Brazil</p> <p>Client: METRO SP</p> <p>Main project features: New Monorail Station to link the Line 15 of the Metro System with the CPTM network. All BIM project.</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2014 – 2019	<p>Name of assignment or project: Executive Project for Concessioned new Line 6, Metro São Paulo.</p> <p>Year: 2014 - 2019</p> <p>Location: Brazil</p> <p>Client: CEL 6 Consortium.</p> <p>Main project features: Executive Design Project for the new Brasilândia and Vila Cardoso subway Stations, as well as the new "Patio Morro Grande" yard.</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2015 – 2016	<p>Name of assignment or project: Executive Project for the new Ponte Grande subway Station, Metro São Paulo.</p> <p>Year: 2015 - 2016</p> <p>Location: Brazil</p> <p>Client: METRO SP.</p> <p>Main project features: Executive Design Project for the new Ponte Grande subway Station, Metro São Paulo. All BIM Project.</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2012 – 2017	<p>Name of assignment or project: Santos LRT Executive Design Project</p> <p>Year: 2012 - 2017</p> <p>Location: Brazil</p> <p>Client: EMTU</p> <p>Main project features: New LRT System executive Project between Santos and São Vicente at "Baixada Santista" area. (18,7 km).</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates.</p>
2013 – 2015	<p>Name of assignment or project: Maceió LRT System</p> <p>Year: 2013 - 2015</p> <p>Location: Brazil</p> <p>Client: Secretaria de Infraestrutura do Estado de Alagoas – SEINFRA / AL</p> <p>Main project features: Feasibility studies, environmental studies, urban transport master plan, conceptual and basic design (20,9 km)</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>
2007	<p>Name of assignment or project: Private Finance Initiative for the Concession of the São Paulo Metropolitan Area Transportation Services</p> <p>Location: Brazil</p> <p>Client: CPTM – COMPANHIA PAULISTA DE TRENS METROPOLITANOS</p> <p>Main project features: Operational design, finance-economical assessment and technological specifications, including ITS and AFC specifications, and legal consultancy, in order to propose a concession of the metropolitan public transportation services, including AFC services for subway and commuter train services</p> <p>Year: 2007 - 2007</p> <p>Positions held: Project Manager</p> <p>Activities performed: Managing all project activates</p>



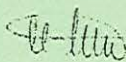
2012	Name of assignment or project: "Penha" Commuter Train Station Year: 2012 - 2012 Location: Brazil Client: Cia. Paulista de Trens Metropolitanos - CPTM Main project features: Preliminary technical, operational and integration studies of a commuter train station in São Paulo Metropolitan Area. Positions held: Project Manager Activities performed: Managing all project activates
2008 – 2010	Name of assignment or project: Environmental Studies of Metrô-SP Line 5 Year: 2008 - 2010 Location: Brazil Client: METRÔ – CIA. DO METROPOLITANO DE SÃO PAULO Main project features: Environmental Impact Study and Environmental Impact Report (EIA/RIMA) e Environmental Basic Project (PBA) of Line 5, Largo 13 - Chácara Klabin stretch of Metrô-SP Positions held: Technical Director Activities performed: Leading the technical design team
2006	Name of assignment or project: Metrô-SP Line 5 Financing Year: 2006 - 2006 Location: Brazil Client: ENGER / CPTM – COMPANHIA PAULISTA DE TRENS METROPOLITANOS Main project features: Advice on the execution of the ex post Report of Line 5 - Phase 1- of the São Paulo Metro, constructed by CPTM, in order of the conclusion of the financing by Inter-American Development Bank (IADB). Positions held: Technical Director Activities performed: Leading the technical design team

Expert's contact information: Email: cmacedo@gpogroup.com

Certification:

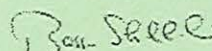
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank

Name of Expert: Claudio Macedo

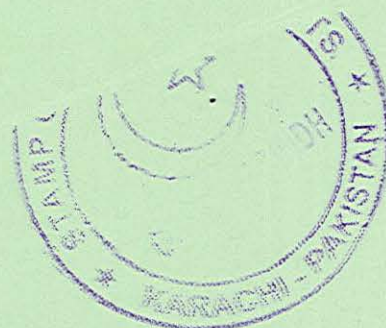


Date: 18/12/2020

Name of Authorized Representative: BASSAM T. HAKSHIR



Date: 18/12/2020



**Form TECH 6
(CONTINUED)
CURRICULUM VITAE (CV)**

Position Title and No.	Senior Structural/Bridge Engineer
Name of Expert:	GAMAL HELMY HANNA
Date of Birth:	12/01/1957
Country of Citizenship/Residence	Egyptian, American / CAIRO

Education:

PhD, Structural Engineering, Cairo University, Egypt, 2002
MSc, Structural Engineering, Cairo University, Egypt, 1988
BSc, Civil Engineering, Cairo University, Egypt, 1980

Employment record relevant to the assignment:

Period	Employing Organisation and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
2007 to date	Dar Al-Handasah Consultants (Shair and Partners) Head of the Department in Cairo	Egypt	Responsible for overseeing and managing all design activities, including coordination with other disciplines and project entities, management of technical documents' preparation, and guiding all technical support activities
1986 - 2007	Dar Al-Handasah Consultants (Shair and Partners) Senior Structural/Bridge Engineer	Egypt	Responsible for the structural design and analysis, including coordination with other disciplines, and preparation of specifications and other technical documents
1981 - 1986	Dr Eng Sabri Samaan Consulting Firm Structural Engineer	Egypt	Participated in the structural design of various projects in Egypt.
1980 - 1981	Arab Consulting Engineers (ACE), Moharram-Bakhoun Structural Engineer	Egypt	Participated in the structural design of various projects in Egypt.

Membership in Professional Associations and Publications:

Consultant in the Design of Concrete Structures, Egyptian Syndicate of Engineers, since 1995. Registration No.2014/1
Egyptian Syndicate of Engineers, since 1980. Registration No.1050/8
Professional Engineer, California, USA, since 2006. Registration No.69851
International Association for Bridge and Structural Engineering (IABSE), Switzerland
American Society of Civil Engineers (ASCE)
Saudi Council of Engineers, since 2011. Registration No.84971
Society of Engineering, Dubai, United Arab Emirates, since 2013. Registration No.31185

Publications:

"Parametric Study of Multispan Cable-Stayed Bridges with Top Stay Cables".

"Evaluation of Prestressing Torsional Moments in Curved Bridges", Proceedings of the FIP Symposium, Post-Tensioned Concrete Structures, Session 7: "Advances in Technology and Design", London, United Kingdom, 25-27 September 1996.

"Modeling of the Elastomeric Bearings for the Seismic Analysis of Precast Girder Bridges". Proceedings of FIP and IABSE Symposium, Bridge Engineering Conference, Sharm El-Sheikh, Sinai, Egypt, March 2000.

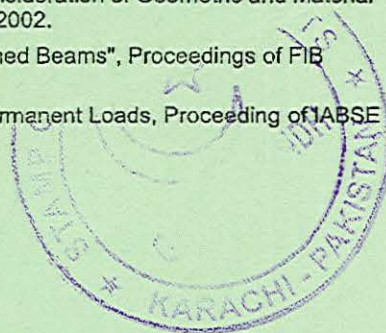
"Ultimate Capacity of Multispan Cable-Stayed Bridges while Considering Elastic Buckling". Proceedings of the Eighth Arab Structural Engineering Conference, October 21 - 23, 2000, Egypt.

"Non Linear Behaviour, Failure Loads and Inelastic Buckling of Multispan Cable-Stayed Bridges", Proceedings of the Eighth International Conference on Civil and Structural Engineering Computing, 19-21 September 2001, Vienna, Austria.

"Buckling and Ultimate Capacity of Multi-Span Cable-Stayed Bridges with Consideration of Geometric and Material Nonlinearities", PhD Thesis, Faculty of Engineering, Cairo University, Egypt, 2002.

"Optimum strands Arrangement of Doubly Unsymmetrical precast pre-tensioned Beams", Proceedings of FIB Symposium, Prague, Czech Republic, June 2011.

"Efficient Approach for the Longitudinal Analysis of Curved Bridges Under Permanent Loads, Proceeding of IABSE Symposium, Sharm El-Sheikh, Egypt, May 2012.



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"Considerations for the Design of Doubly Unsymmetrical Precast Pre-tensioned Beams used for box Girder Constructions", Fib Structural Concrete Journal, August 2012.

"Efficient Design and construction of the APM Major Bridge project in Saudi Arabia", Proceedings of IALCCE Symposium, Vienna, Austria, October 2012.

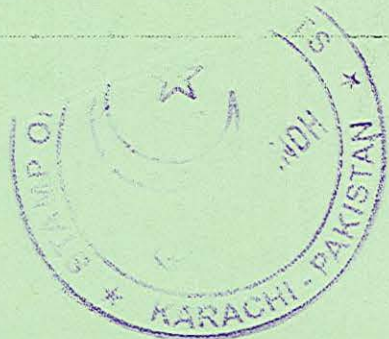
"Effect of Skewness Bridges subjected to Seismic Loading" proceedings of IABSE Symposium, Rotterdam, The Netherlands, May 2013.

"Highlights of the design and construction of a 12 km elevated APM bridge project in Saudi Arabia", Fib Structural concrete, Journal, September 2013.

Language Skills	Reading	Writing	Understanding
Arabic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
French	Fair	Fair	Fair

Adequacy for the Assignment:

Detailed Tasks Assigned: Refer to TECH-5 and TECH-6	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<p>Since 1986 With Dar Al-Handasah Consultants (Shair and Partners), Bridges Dept.</p> <p>2007 to date <u>Head of the Department in Cairo</u></p> <p>Responsible for overseeing and managing all design activities, including coordination with other disciplines and project entities, management of technical documents' preparation, and guiding all technical support activities, for the following projects:</p> <ul style="list-style-type: none">- Streetscape and Station Design for Riyadh Bus Rapid Transit (BRT) Network, Saudi Arabia. Detailed designs for the streetscape works (hard and soft) of sidewalks along entire BRT corridors (65 km). Works include creating a pedestrian-friendly environment that is consistent with the vision of the new public transport system. The scope also include the design of 2 terminal stations, 55 in-line stations, 4 park-and-ride sites, 35 pedestrian bridges, 4 types of community bus shops, and 1 type of feeder bus stops.- CP07-B - Lusail Towers Infrastructure, LRT Station, Car-Park and Landscape, Qatar. Detailed design (under BIM management and achieving GSAS 4 stars), tender documents and technical assistance during construction for various project components, including a 2-level tunnel along Road A1, structural and civil works for a combined LRT station of an area of 14,000 m², multi-storey underground car-park, bridge at Junction No.19, and various other infrastructure services and enabling works.- Infrastructure Design for Ibom Industrial City - Phase 1, Nigeria. Detailed design and tender documents for all infrastructure components related to a 2,000 ha site, covering internal roads, accesses, parking areas, and others.- Roads Connecting Sabah Al Ahmad and Khiran New Towns, Kuwait. Design, tender documents, tender management and supervision of works for the upgrading of Road 306 from Shuhaiba Industrial area to Wafra with a length of 38 km and including 2 interchanges, upgrading of Road 309 from Mina Al Zur Interchange to Wafra Farms' existing roundabout with a length of 29 km and including one interchange, upgrading the existing link road (7 km) and construction of a new one (25 km) between Road 306 and Road 309, and construction of new link roads between Nawaseeb Road and Sabah Al Ahmad Town (length of 15 km) as well as between Sabah Al Ahmad and Khiran Towns (14 km). Total length of roads: 128 km- Jeddah Ring Road, Saudi Arabia. Alignment selection, topographic survey, preliminary and final designs, and preparation of tender documents for an 83 km 4-lane dual carriageway comprising 15 grade separated interchanges and 6 crossing bridges; 2 new link roads with a total length of 18 km with 2 interchanges and 2 bridges; drainage network, landscaping and irrigation, street lighting, and road safety features. The scope also comprises utilities diversion and the improvement of 15 existing interchanges along Airport East Road in Jeddah.



- Riyadh Outer Ring Road, Saudi Arabia. Alignment selection, preliminary and final designs and preparation of tender documents for the following: improvement of Junctions No. 5, 6 and 7 on the Northern Leg of Riyadh Ring Road, improvement of Al-Sena'ia Junction (right in/out-quarter cloverleaf interchange), the outer Eastern Leg from Khurais Road to Al-Harj Road Junction (16 km), completion of the Southern Leg extension and junctions, upgrading of Harun Al-Rasheed and Istanbul at-grade junctions (4 km) to grade-separated interchanges, and Mulhem and North Links (25 km). Works also comprised the upgrading/rehabilitation and addition of interchanges, bridges, intersections, service roads, etc.
- **Greater Cairo Metro Line III - Phase 4b, Egypt.** Detailed design (under BIM management) for a 15.8 km long metro line with 11 stations, extending from the centre of Heliopolis District to Cairo Airport and Cairo Ring Road. The alignment includes a 6.5 km long viaduct; 5 elevated stations, comprising 4 typical twin-track and twin-platform elevated stations and one 3-track twin-platform terminal elevated station with shunting tracks; one depot for heavy and light maintenance (workshop) with 32 buildings; and all wet infrastructure and electromechanical services.
- **Green Line and Red Line North Elevated and At-Grade Design & Build Packages, Qatar.** Design for the Green Line alignment (length of 3.2 km of which 2.7 km are elevated) with 4 highway crossings and one station, and the Red Line North alignment (length of 6.8 km of which 2.2 km are elevated and 2.2 km are in tunnels) with 2 stations and a pedestrian plaza at Lusail Centre Station which provides connectivity between the metro station, LRT system, park-and-ride area to the west, and Lusail City/Lusail Stadium to the east. The scope covered all infrastructure services and electromechanical systems.
- Princess Nora Bint Abdulrahman University (PNU) - Campus Transit System, Saudi Arabia. Master plan, design, tender documents and supervision of construction for an 11.85 km dual-track elevated rail system, with 14 air-conditioned stations, 2 bus terminals, 3 pedestrian bridges, and a complete maintenance and storage facility. The fully automated system operates along 4 overlapping routes, with headways as short as 90 seconds, achieving full coverage for the university's housing, academic and administrative facilities. The APM bridge is of pre-tensioned precast C-beams for straight sections, and post-tensioned precast segments for curved sections. Span lengths range from 30 m to 40 m.
- **Doha Metro Green Line Elevated Section, Qatar.** Detailed design (under BIM management) and tender documents for the Green Line alignment (length of 3.2 km of which 2.7 km are elevated) with 4 highway crossings, one 14,000 m² station, and all infrastructure utilities.
- Design and Supervision for Bandra - Worli Sea Link Project, India. Redesign and supervision of construction for 2 cable-stayed bridges erected in a balanced cantilever manner and a 1,500 m long bridge, part of a 5 km long twin 4-lane viaduct linking Worli and Bandra across Mahim Bay. The redesign provides for a 600 m long cable-stayed bridge with a single-supported tower for a 500 m span crossing Bandra creek, and a 350 m main span cable-stayed bridge with a conventional twin-tower arrangement crossing Worli creek. The viaduct is of 50 m typical span made of precast box girder segments, erected span by span. The bridges comprise state-of-the-art systems for traffic monitoring, street lighting, surveillance, information and guidance, instrumentation, emergency support, etc. Works also included a flyover over Love Grove junction at Worli and a cloverleaf interchange at Mahim intersection



- Versova Bandra Sea Link (VBSL), India. Detailed design and tender documents for a sea link consisting of 9.6 km long, dual 4-lane carriageway main bridge; one cable-stayed bridge (0.3 km long, dual 4-lane carriageway); three balanced cantilever bridges (0.1 km long, dual 4-lane carriageway each); Bandra Connector dual 2-lane carriageway with 1.17 km long trumpet interchange; Otters Club Connector dual 3-lane carriageway with 1.8 km long trumpet interchange; Juhu Koliwada Connector dual 2-lane carriageway with 2.8 km long trumpet interchange; and Versova Connector dual 3-lane carriageway with a partial 1.8 km long trumpet interchange for future extension of the main bridge.
- Autoroute Est-Ouest - East Lot: Pre-Construction Services, Detailed Design Levelling, Execution Drawings and Local Component, Algeria. Reconnaissance site visits, preparation of unified design criteria, review of existing designs, and preparation of construction documents and bills of quantities for 235 km of dual 3-lane toll motorway, comprising 19 viaducts and bridges with a total length of 8.15 km, 3 twin-tube tunnels and one cut-and-cover tunnel with a total length of 5 km, 10 interchanges, 76 overpasses and 32 underpasses.
- Khurais Bridge, Saudi Arabia. Detailed design and supervision of construction for solving the junction at Khurais Interchange and related highway issues, including the addition of a main bridge of 3 spans, 2 direction ramps, and 4 protection frames to protect important current and future potable water pipelines.
- Assir - Jizan Road, Saudi Arabia. Detailed design and tender documents for a 125 km 2-lane dual carriageway main road (design speed: 90 km/h) through a very rough terrain especially in the first 30 km (mainly escarpment) thus requiring 11 twin tunnels (total length of 4,500 m), 55 bridges (total length of 8,800 m) and 10 interchanges. In the locations of bridges and tunnels the road is of 3 lanes in each direction. The design also covered all pavement works, and signing and marking schemes.
- **Bridges and Pedestrian Crossings in Mashaer, Saudi Arabia.** Detailed design and tender documents for Wadi Muhassar 220 m long/16 m wide pedestrian bridge between Muna and Muzdalifah with several 8 m wide ramps (total length of 500 m); 600 m long/12 m wide pedestrian bridge adjacent to the existing King Abdullah Bridge with three 6 m to 8 m wide ramps (total length of 360 m); 230 m long/12 m wide extension of a pedestrian bridge adjacent to the existing King Abdullah Bridge with a 125 m long/6 m wide ramp; 120 m long/10 m wide underpass in Rabwet Muna with a 100 m long/5 m wide ramp and two 165 m long/8 m wide ramps; and "Muzdalifah 3" Metro Station 400 m long/10 m wide pedestrian bridge to facilitate pilgrims' movement. The adopted structural system is precast prestressed beams resting on RC pier frames.
- Qassim - Jubail Expressway, Saudi Arabia. Design review and supervision of construction for a 45 km expressway consisting of 3 lanes with inner and outer paved shoulders separated by 16 m median in addition to 5 interchanges, underpass, wadi bridge, and railway bridge. The scope also included box culverts, hydrological protections, incidental works, and traffic safety works.
- CP07-B - Pergolas and Bridge 19, Qatar. Detailed design and IFC drawings for the bridge at Junction 19 and two Pergolas. The bridge consists of a single carriageway with two 3.65 m wide vehicle lanes, two 0.5 m wide side distances, two 3.34 m wide service corridors and two 0.5 m wide parapets. The pergolas that are iconic slender structures supported by the trough structure underneath, consist of reinforced concrete frame elements which are curved in the longitudinal and transversal directions. The pergolas carry 4 service roads, each consisting of two 3.65 m wide vehicle lanes, 0.35 m outer shoulder (EDST) and 0.35 m shy distance (shoulder).

1986 - 2007

Senior Structural/Bridge Engineer

From October 2003 to April 2004, seconded to T.Y.Lin International where he participated in the construction analysis of the following project:



- Oakland Bay Bridge, San Francisco, United States. Design and supervision of construction for a dual, 3.6 km long, parallel structure suspension bridge that accommodates 5 lanes of traffic and a light rail transit in each direction as well as a 4.8 m wide pedestrian/bicycle path on the east-bound structure. The bridge lies between the Hayward and the San Andreas faults that are capable of generating 7.5 M and 8.1 M magnitude earthquakes respectively. The bridge crossing is made up of 4 structure types: a low-rise, post-tensioned concrete box girder at the Oakland shore; a 2.4 km long segmental concrete box girder "skyway"; a self-anchored suspension span; and a post-tensioned concrete box girder connecting to the Yereba Buena Island Tunnel. The main span is 385 m long with a back span of 180 m (the largest self-anchored suspension span in the world). The tower is 160 m tall and consists of 4 steel shafts connected with intermittent steel shear links along its height.

Responsible for the structural design and analysis, including coordination with other disciplines, and preparation of specifications and other technical documents, for the following projects:

- Detailed Design for North Road, Qatar. Complementary traffic studies, topographic surveys, preliminary and detailed design, tender documents and supervision of construction for the upgrading of the following freeways to a dual 4-lane structure as well as for all associated works: North Road (98 km) linking Doha and Madinat Al Shamal/Al Ruwais on the north coast; Al Zubara Road (35 km) forming the main approach to Qatar - Bahrain Causeway; and Simaisma Road (8 km) linking North Road to a rapidly developing area on the east coast. Works involved 9 dual carriageway bridges, 11 single carriageway bridges, interchanges, camel crossings, service roads, rest areas, 4 weighing stations, and all infrastructure facilities. The scope also covered concept design and ducting for a future Intelligent Transportation System.
- Autoroute Est-Ouest, CW 133 - El Harrouch Section, Algeria. Final design of a 49 km motorway, including 4 twin-tube tunnels (900 m, 450 m and two of 1,000 m), 6 viaducts (120 m, 488 m, two of 444 m and two of 242 m), 15 special structures, 75 ordinary structures, 4 interchanges, one service area, one rest area and one maintenance area.
- Extension of King Khaled Road - Moaisem Interchange, Makkah, Saudi Arabia. Design and supervision of construction for a directional interchange between the extension of King Khaled Road and Moaisem existing Road to provide a new exit for buses from Muna to Makkah with a total length of 1.5 km for the main line and 4.9 km for the ramps. Works also comprised 2 new parking lots for buses and realignment of the 2 existing parking lots at the interchange area.

1981 - 1986 With Dr Eng Sabri Samaan Consulting Firm, Egypt, Structural Engineer.

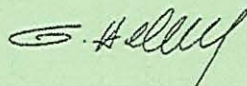
1980 - 1981 With Arab Consulting Engineers (ACE), Moharram-Bakhoun, Egypt, Structural Engineer

Expert's contact information: email: Gamal.Helmy@dar.com

Certification:

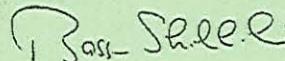
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank

Name of Expert: GAMAL HELMY HANNA



Date: 18/12/2020

Name of authorized Representative: BASSAM T. SHAKHSHIR



Date: 18/12/2020



**Form TECH 6
(CONTINUED)
CURRICULUM VITAE (CV)**

Position Title and No.	Senior Pavement Engineer
Name of Expert:	ISLAM MAMDOUH AWAD
Date of Birth:	13/03/1976
Country of Citizenship/Residence	Egyptian / CAIRO

Education:

PhD, Civil Engineering - Geotechnical, Water Resources Management and Environment, Kyushu University, Japan, 2008

Master, Advanced Studies in Hydraulic Engineering, Ecole Polytechnique Fédérale de Lausanne, Suisse, 2005

BSc, Civil Engineering, Alexandria University, Egypt, 1999

Employment record relevant to the assignment:

Period	Employing Organisation and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
2008 to date	Dar Al-Handasah Consultants (Shair and Partners) Senior Geotechnical/Pavement Engineer	Egypt	Participated in the preparation and analysis of geotechnical site investigations, foundation and pavement design, and preparation of geotechnical reports
2005 - 2008	Laboratory of Geotechnical Engineering, Department of Civil and Structural Engineering, Kyushu University, Fukuoka Research Assistant	Japan	Participated in research activities towards the improvement of erosive volcanic soils located in Kagoshima and Miyazaki Prefectures, South of Japan
2003 - 2005	Laboratory of Hydraulic Constructions, Civil Engineering Section of the School of Environmental, Civil and Architectural Engineering, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne Research Associate/Trainee Engineer	Switzerland	Participated in research activities
2002 - 2003	Arabian International Contractors (AIC) Site Engineer	Egypt	Worked on the construction of West Alexandria Wastewater Treatment Plant with a capacity of 500,000 m³/day. Project value: USD 200 million (financed by USAID). Responsible for site marking out, applying designs and plans, liaison with subcontractors, organisation and supervision of materials and human resources, and ensuring proper implementation of site security, health and
2001 - 2002	Blue Sky Company for Construction Site Engineer	Egypt	Worked on the Marine Works for North West Gulf of Suez Thermal Power Plant Project (combined cycle turbines with a capacity of 2x341 MW), Egypt. Project value: USD 340 million. Responsible for site management, and quantity surveying in addition to carrying out various technical and contractual activities. During the same period, carried out various site supervision tasks on Sinai and
2000 - 2001	Military service Site Engineer	Egypt	Worked on the supervision and inspection of site construction works for various military residential and facility projects in Alexandria, Egypt.

Membership in Professional Associations and Publications:

Egyptian Syndicate of Engineers, since 1999. Registration No.2/2198

Japan Society of Civil Engineers (JSCE)

Japan Geotechnical Society (JGS)



Publications:**Articles in Conferences:**

Islam Awad, Giovanni De Cesare, Anton Schleiss, Reto Zuglian, "Potential of sediment transfer in a shallow storage lake, numerical modeling to assess the efficiency of technical solutions and their optimisation", Proceedings of Hydro 2005: Policy into Practice, 17-20 October 2005, Villach, Austria, 15.11, pp. 1-8.

Giovanni De Cesare, Islam Awad, Anton Schleiss and Reto Zuglian. "Verlandungsmechanismen und Lösungsansätze zum Sedimenttransfer im Speicher Gubsensee (Schweiz)", Proceedings of the Symposium Graz 2006 "Stauhaltungen und Speicher - Von der Tradition zur Moderne", Schriftenreihe zur Wasserwirtschaft, Technische Universität, Graz, ISBN 3-902465-50-6, 46/1, Graz, Austria, pp. 210-221, 27-30 September 2006.

Islam Awad, Noriyuki Yasufuku and Hidetoshi Ochiai. "Development of New Erosion control apparatus for high erodible volcanic ash sandy soil", Proceedings of the 4th Asian Joint Symposium on Geotechnical Geo-Environmental Engineering (JS-Dalian 2006), Dalian, China, pp. 415-418, November 2006.

Islam Awad, Noriyuki Yasufuku and Hidetoshi Ochiai. "Erodibility of unsaturated volcanic ash sandy soils related to degree of compaction", Proceedings of the 3rd Asian Conference on Unsaturated Soils, Nanjing, China, pp. 169-174, 21-23 April 2007.

Islam Awad, Noriyuki Yasufuku and Hidetoshi Ochiai. "Chemical compounds effect on critical shear stress and erodibility of volcanic ash soil", Proceedings of the First Egypt-Japan International Symposium on Science and Technology, Tokyo, Japan, pp. 133, 8-10 June 2008.

Islam Awad, Noriyuki Yasufuku and Hidetoshi Ochiai. "Chemical compounds effects on erodibility of volcanic ash soils", 4th International Conference on Scour and Erosion (submitted and accepted), Tokyo, Japan, 5-7 November 2008.

Articles in Journals:

Islam Awad, Noriyuki Yasufuku and Hidetoshi Ochiai, "Erosion rates of soils improved by chemical additives for protection against overland flow", Memoirs of the Faculty of Engineering, Kyushu University, Vol. 67, No. 4, pp. 153-164, December 2007.

Short Notes:

Islam Awad, Noriyuki Yasufuku and Hidetoshi Ochiai. "Estimation of runoff critical shear stress for volcanic soil erosion from soil shear strength", Proceedings of the 43rd Annual Meeting of Japanese Geotechnical Society (JNCGE), Hiroshima, Japan, D-04, pp.769-770, July 2008.

Islam Awad, Giovanni De Cesare, Anton Schleiss, Reto Zuglian, Noriyuki Yasufuku and Hidetoshi Ochiai. "Numerical 3D modeling and optimisation of technical measures to reduce sedimentation inside lakes", Proceedings of the Annual Meeting of Western Part of the Japanese Society of Civil Engineering, Miyazaki, Japan, III-055, pp. 485-486, 4 March 2006.

Islam Awad, Noriyuki Yasufuku and Hidetoshi Ochiai. "Development of new erosion control apparatus for high erodible volcanic ash sandy soil", Proceedings of the Annual Meeting of Western Part of the Japanese Society of Civil Engineering, Kita Kyushu, Japan, III-079, pp. 515-516, 10 March 2007.

Islam Awad, Giovanni De Cesare, Anton Schleiss, Reto Zuglian, Noriyuki Yasufuku and Hidetoshi Ochiai. "Numerical 3D modeling and optimisation of technical measures to reduce sedimentation inside lakes", Proceedings of the Annual Meeting of Western Part of the Japanese Society of Civil Engineering, Miyazaki, Japan, III-055, pp. 485-486, 4 March 2006.

Technical Reports:

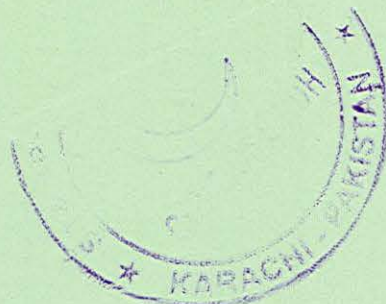
Awad, I. and De Cesare, G. (2004), "Sedimentation in the Gubsensee - Numerical modeling and optimisation of technical solutions to reduce sedimentation of the reservoir", LCH-EPFL-Activity Report 2004, p. 84.

Awad, I. and De Cesare, G. (2005), "Sedimentation in the Gubsensee - Numerical modeling and optimisation of technical measures to reduce sedimentation inside the lake", LCH-EPFL-Activity Report 2005, p. 31.

Language Skills	Reading	Writing	Understanding
Arabic	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
French	Excellent	Excellent	Excellent

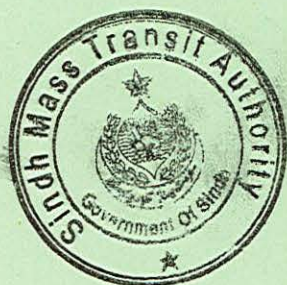


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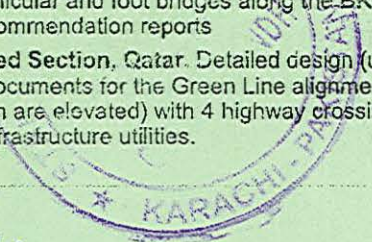


Adequacy for the Assignment:

Detailed Tasks Assigned: Refer to TECH-5 and TECH-6	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
	<p data-bbox="483 602 1451 655">Since 2008 With Dar Al-Handasah Consultants (Shair and Partners), Geotechnical & Heavy Civil Engineering Dept.</p> <p data-bbox="483 663 1451 690">2008 to date Senior Geotechnical/Pavement Engineer</p> <p data-bbox="646 709 1451 790">Participated in the preparation and analysis of geotechnical site investigations, foundation and pavement design, and preparation of geotechnical reports for the following projects:</p> <ul data-bbox="646 798 1451 2338" style="list-style-type: none"> - Central Business District at the New Administrative Capital - Planning, Landscape and Infrastructure, Egypt. Master plan development for the Central Business District-East, covering a site area of 810,600 m². - Upgrading of The Rwenkunye-Apac-Lira-Acholibur Road (191km), Uganda. Design review and supervision for the upgrade of two single-carriageway lots (total distance of 191 km) along the Rwenkunye – Apac – Lira – Acholibur road, a Class C gravel road connecting the western and northern parts of Uganda. Prior to upgrade, the road's condition was considered poor, characterised by surface corrugations, potholes, deformations, and poor drainage facilities. - Infrastructure Design for Ibom Industrial City - Phase 1, Nigeria. Detailed design and tender documents for all infrastructure components related to a 2,000 ha site, covering sewage collection, stormwater drainage and flood protection measures, potable and fire-fighting water supply, landscape irrigation, and others. - CP07-B - Lusail Towers Infrastructure, LRT Station, Car-Park and Landscape, Qatar. Detailed design (under BIM management and achieving GSAS 4 stars), tender documents, and technical assistance during construction for various project components, including a 2-level tunnel along Road A1, combined LRT station of an area of 14,0000 m², multi-storey underground car-park, bridge at Junction No.19, six 11 kV substations, wet infrastructure utilities (sewerage, irrigation, drainage), public realm features, and integration of gas, district cooling and pneumatic waste collection systems, and other enabling works. - Roads Connecting Sabah Al Ahmad and Khiran New Towns, Kuwait. Design, tender documents, tender management and supervision of works for the upgrading of Road 306 from Shuhaiba Industrial area to Wafra with a length of 38 km and including 2 interchanges, upgrading of Road 309 from Mina Al Zur Interchange to Wafra Farms' existing roundabout with a length of 29 km and including one interchange, upgrading the existing link road (7 km) and construction of a new one (25 km) between Road 306 and Road 309, and construction of new link roads between Nawaseeb Road and Sabah Al Ahmad Town (length of 15 km) as well as between Sabah Al Ahmad and Khiran Towns (14 km). Total length of roads: 128 km. - Streetscape and Station Design for Riyadh Bus Rapid Transit (BRT) Network, Saudi Arabia. Detailed designs for the streetscape works (hard and soft) of sidewalks along entire BRT corridors (65 km). Works include creating a pedestrian-friendly environment that is consistent with the vision of the new public transport system. The scope also include the design of 2 terminal stations, 55 in-line stations, 4 park-and-ride sites, 35 pedestrian bridges, 4 types of community bus shops, and 1 type of feeder bus stops. - Oshodi to Obalende (via Mile 2) Bus Rapid Transit System, Nigeria. Detailed design and tender documents for a Bus Rapid Transit (BRT) dedicated lane within the existing motorway from Oshodi to Apapa North and from Eric Moore to Obalende. The project comprises 11 bus stops along Oshodi - Apapa corridor, 2 bus terminals at Oshodi and Apapa North, a terminal at Obalende, upgrading of 3 stations at Leventis, Marina and CMS. Works also comprised pavement condition survey and destructive/non-destructive pavement testing surveys (Cores, Test Pits, DCP) along the existing 20 km 3-lane dual carriageway with 2-lane service roads at both directions, in addition to the analysis and interpretation of survey results, preparation of design calculations for flexible/rigid pavements and shallow/deep foundations for vehicular and foot bridges along the BRT corridor, and preparation of recommendation reports - Doha Metro Green Line Elevated Section, Qatar. Detailed design (under BIM management) and tender documents for the Green Line alignment (length of 3.2 km of which 2.7 km are elevated) with 4 highway crossings, one 14,000 m² station, and all infrastructure utilities.



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- Construction and Upgrading of Mesaimeer Road-Project 8/Contract 3, and Al Bustan Street South (P007 C5 P1), Qatar. Concept design and tender documents for the upgrading of a 4 km existing dual carriageway on Mesaimeer Road from South of Abu Hamour Street Junction to South of Al Waab Street, including road widening to 4 lanes in each direction, parallel at-grade service roads on either side of the main carriageway, new 2-level grade-separated interchange at Abu Hamour Street (including an elevated road on bridge and 900 m long MSE embankment), new 2-level grade-separated interchange at Haloul Street and introduction of a third level overpass at the existing Salwa Road Interchange, including a 1,200 m long elevated structure crossing over both Haloul Street and Salwa Road. The other project component consists of the upgrading of Al Bustan Street (South) to a dual carriageway with a minimum of 4 lanes in each direction from South of Rayyan Road Junction R6 to South of Al Waab Street, including 2-level interchanges at Junctions B1 (Al Waab Street/Al Bustan Street intersection) and B2 (Al Khufoos Street/Al Bustan Street intersection), and a mid-block crossing underpass between Junctions R6 and B2.
- Internal Roads, Infrastructure, Parking and Streetscape for Sector 3/2, Abu Dhabi, United Arab Emirates. Concept and detailed design, tender documents and supervision of construction for all infrastructure facilities related to open public spaces and roads within a 17 ha existing district. The proposed public realm area is 167,000 m², of which 47,600 m² for pedestrian realm, 69,700 m² for roads and car-parking, and 11,900 m² for open spaces.
- Bejaia - Autoroute Est-Ouest Highway Link, Algeria. Design review and supervision of construction for a 100 km long road linking Bejaia Port and the Autoroute Est-Ouest through AHNIF Interchange, including all related infrastructure services. The project includes 29 viaducts each exceeding 100 m in length (total of 11.5 km), 5 bridges, 8 interchanges, 45 underpasses, 157 culverts, and 3 lanes in each direction 1,628 m long bi-tube tunnel (6.77 m diameter), landscaping, drainage and street lighting.
- **Pavement Evaluation** for Defective Roads, Oman. Pavement condition survey and evaluation of existing roads, including planning and result-interpretation of visual surveys, traffic and topographic surveys, destructive and non-destructive pavement testing, and drainage surveys in addition to the recommendation of necessary rehabilitation measures for 6 roads with a total length of 750 km with early pavement defects that were observed shortly after construction.

- 2005 - 2008 With the Laboratory of Geotechnical Engineering, Department of Civil and Structural Engineering, Kyushu University, Fukuoka, Japan, Research Assistant.
- 2003 - 2005 With the Laboratory of Hydraulic Constructions, Civil Engineering Section of the School of Environmental, Civil and Architectural Engineering, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, Research Associate/Trainee Engineer.
- 2002 - 2003 With Arabian International Contractors (AIC), Egypt, Site Engineer. Worked on the construction of West Alexandria Wastewater Treatment Plant with a capacity of 500,000 m³/day. Project value: USD 200 million (financed by USAID).
- 2001 - 2002 With Blue Sky Company for Construction, Egypt, Site Engineer. Worked on the Marine Works for North West Gulf of Suez Thermal Power Plant Project (combined cycle turbines with a capacity of 2x341 MW)
- 2000 - 2001 Military service, Egypt, Site Engineer. Worked on the supervision and inspection of site construction works for various military residential and facility projects in Alexandria, Egypt.

Expert's contact information: email: Islam.Mamdouh@dar.com

Certification:

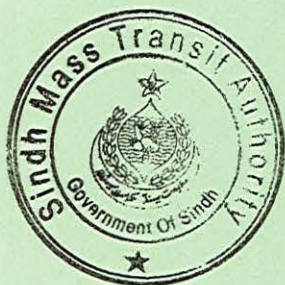
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank

Name of Expert: ISLAM MAMDOUH AWAD

Date: 10/01/2021

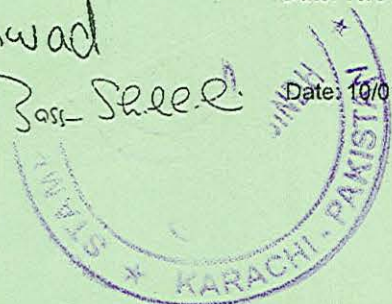
Name of authorized Representative: BASSAM T. SHAKHSHIR

Date: 10/01/2021



Islam Awad

Bassam Shakhshir



**Form TECH 6
(CONTINUED)
CURRICULUM VITAE (CV)**

Position Title and No.	Senior Procurement Specialist
Name of Expert:	Ibrahim Ahmed Haddad
Date of Birth:	23/01/1965
Country of Citizenship/Residence	Egypt

Education:

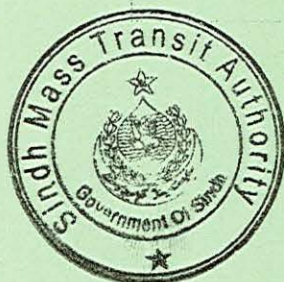
B.Sc. of Environment Civil Engineering, Ain Shams University - Egypt, 1987

Specialized Education:

- **World Bank Procurement Program; STEP - SYSTEMATIC TRACKING OF EXCHANGES IN PROCUREMENT**
- Procurement and Contract Management Program – American University in Cairo 1997.
- Professional Program in Capacity Building, Gaps Assessment, Programme Management and Contractual, Commercial & Legal Aspects and Settlement of Disputes, Claims, in the Construction Industry (CLAC), AUC, 2005.
- Project Management; project operation, Procurement management, project implementation, National Contracts Management Association (NCMA), AUC, 2006.
- Professional Program in Claims, Variations, Disputes and Civil Law AUC, 2012.

Employment record relevant to the assignment:

Period	Employing Organisation and your title / position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
2020	Stantec SA/NV – Belgium/Senior Procurement & Contracts Expert and Institutional & Capacity Building Expert	Egypt	Responsible for procurement management and capacity building and training of client key staff of the program for "Fayoum Wastewater Expansion" Design and Build .
2018 – 2020	CDM-International Senior Contracts and Procurement Manager & Senior Coordinator	Egypt	Led request for proposals from contractors and supplier, pre-qualifications, preparation of tender documents, tender review and recommendation, negotiations and contract management for "Integrated Water Solutions Support Project" in Egypt funded by the USAID. Design and Build
2016-2018	Mott MacDonald & Gopa-Infra Consortium Senior Contracts & Procurement Expert	Egypt	Advised on different procurement plans and led request for proposals from contractors and supplier, pre-qualifications, preparation of tender documents, tender review and recommendation, negotiations and contract management for "Sustainable Rural Sanitation Services Program" in Egypt funded by World Bank. Design and Build
2015	United Nations Deputy Team Leader	Iraq	Administered technical aspects and management of Consultants and Stakeholders for "the UN-Habitat Water Reform Project in Iraq".
2012 – 2016	Turner International & Emaar consortium Senior Contracts & Procurement Manager and Deputy Program Manager	Egypt	Conducted design management and led request for proposals from contractors and supplier, pre-qualifications, preparation of tender documents, tender review and recommendation, negotiations and contract management for "Sidi Abdel Rahman North Coast, Marassi Project" in Egypt. Design and Build



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2009 – 2012	Jacobs/CH2M HILL Senior Procurement & Contracts Manager	Saudi Arabia	Led request for proposals from contractors and supplier, pre-qualifications, preparation of tender documents, tender review and recommendation, negotiations and contract management for "Remediation and Restoration of Terrestrial And Coastal Resources Project" in Saudi Arabia funded by the United Nation Compensation Commission.
2001 – 2009	Dar Senior Procurement & Contracts Manager	Saudi Arabia / Egypt	Acted as a lead member of CRC (Claims Review Committee) with ARAMCO; conducted design management; and led request for proposals from contractors and supplier, pre-qualifications, preparation of tender documents, tender review and recommendation, negotiations and contract management for different packaged in "Saudi Arabia, Khafji Project" and "Terminal Building No.3 Cairo International Airport Project" funded by IBRD. Design and Build
1997 – 2001	Parsons International Project Manager	Egypt	Conducted design management and administered the procurement, pre-tender and post tender phases for "13 Contracts of Dream Land Project including the Renovation of Procter & Gamble Headquarters" in Egypt.
1995 – 1997	Dr. Ahmed Abdel Warith (AAW) Consulting Engineers Organization Project Manager	Egypt	Overall project management and development of procurement plan for "Bristol Myers Squibb – Pharmaceutical Plant Expansion project" in Egypt.
1992 – 1995	Sabbour Supervision Construction Engineer	Egypt	Participated in various construction supervision tasks for "Greater Cairo Wastewater Project" in Egypt.
1990 – 1991	ABB Quality Control Engineer	Egypt	Participated in various quality assurance activities for "Wastewater treatment plant, Abu Rewash Project" in Egypt.
1987 – 1989	Sadelmi Cojipy Construction Engineer	Egypt	Participated in Inspection for the "Environmental Project of Zenein Wastewater treatment plant" in Egypt funded by USAID.

Membership in Professional Associations and Publications:

Certified Arbitrator under Law No. 27 of the year 1994. Egypt.

Egyptian Syndicate of Professional Engineers, National Contracts Management Association (NCMA)

American Society of Civil Engineers "ASCE"

Project Management Institute "PMI"

Consultant for the Committee responsible for issuing Law No. 182 of the year 2018 for regulating procurement, contracts agreement in Egypt.

Language Skills	Reading	Writing	Understanding
English	Excellent	Excellent	Excellent
Arabic	Excellent	Excellent	Excellent



Adequacy for the Assignment:

Detailed Tasks Assigned: Refer to TECH-5 and TECH-6	Reference to Prior Work / Assignments that Best Illustrates Capability to Handle the Assigned Tasks
2020 - Present	<p>With Stantec SA/NV – Belgium</p> <p><u>Senior procurement & Contracts Expert and Institutional & Capacity Building Expert</u></p> <p>Design Build FIDIC Yellow Book 2017 – Wastewater Treatment Plants, in Fayoum Wastewater Expansion Program Funded and in compliance with guidelines, procedures & Regulations of European Bank for Reconstruction and Development EBRD. The Project provide first time sanitation to around 940,000 residents of the Fayoum governorate in Egypt and help alleviate the water contamination of the lake Quaron (Egypt's third largest lake) through the construction, expansion and rehabilitation of new and existing wastewater treatment plants ("WWTPs") with associated pipework and installation of pumping stations and the purchase of evacuation trucks to serve other remote unserved rural areas.</p> <p>Duties and Responsibilities</p> <ul style="list-style-type: none"> - Provided capacity building and training on all aspects of the Key Performance Indicators (KPIs), Project Management, Construction Management, Contracts and Procurement Management, Claims, Disputes and Variations Management to the client key staff of the Program. - Assisted with establishment of the Project Implementation Unit (PIU); to develop job descriptions, including key qualifications required, for the PIU staff that are required for the Project, PIU staff; position, job description and key qualifications, PIU organization chart including nominees. - Identified the training needs required (for the Client-HCWW and PIU staff), to effectively implement the Project including: <ul style="list-style-type: none"> o Training Need Assessment Report, o Training Plan, o Training Materials. - Conducted the required training to include: <ul style="list-style-type: none"> o procurement and contracting; o project control and reporting, including to Project financiers and other stakeholders; o project accounting and disbursement processing; o EBRD Environmental Performance Requirements, including the implementation of the Environmental & Social Action Plan and Stakeholder Engagement Plan and related monitoring and reporting. - Established the operating systems and procedures required to manage the scope of the Project including: <ul style="list-style-type: none"> o Project Procedures System. o Financial Management System. o Project Management System.
2018-2020	<p>With CDM-International</p> <p><u>Senior Contracts and Procurement Manager & Senior Coordinator</u></p> <p>Project</p> <p>Integrated Water Solutions Support (IWSS) Project consisting of new water treatment plants (WTPs) at El Hanady WTP (17,000 m3/day) in Luxor Governorate and El Maabda WTP</p>



(25,000 m3/day) in Assiut Governorate and sewer collection systems, including pump stations in two Dronka Villages in Assiut Governorate and three Tema Villages in Suhag Governorate.

Duties and Responsibilities

- Solicited quotations and proposals from contractors & suppliers, cost analysis and negotiation of offered quotations & proposals received.
- Compiled bid documents and formed Contracts in coherence that accommodates projects' particulars,
- Administered bid cycle in compliance with guidelines, procedures & Regulations of Federal Acquisition Regulations (FAR), Host Country Contracts (HCC) and FIDIC contract.
- Established the Technical and Commercial Evaluation Criteria.
- Prepared contract documentations with managing of all related provisions, terms of payments and invitations to tenders.
- Led and Coordinated the pre-qualification of contractors and evaluation of bids (technical & commercial) as to the responsiveness and conformance to the specified criteria and all requirements of Instruction to Tender and provisions of the bid documents.
- Managed claims procedures, mitigation of claims, contract changes, merits analysis, entitlement analysis, review and assessment of events giving rise to claims and pertinent particulars of contracts, negotiation and settlement of claims and issuance of variation orders.
- Minimized the potential impact of claims
- Reviewed bonds "Advance Payment, Performance Bonds" and made recommendations.
- Reviewed progress payments and provided recommendation to client in compliance with the terms of payment and contracts provisions.
- Administered the various contracts to ensure that all contract provisions are implemented.
- Maintained records of all project's documents, correspondence, etc.
- Prepared and issued change orders and contract addenda so as to incorporate change orders under the contracts' provisions.
- Evaluating information from contractors, subcontractors and identifying of expected area of problems that could have an impact on work progress.
- Coordinated and drafted the construction management forms required to monitor and control different construction trades and implementation with quality management plan (QMP).
- Monitored the rectification of the punch list items.
- Coordinated project handing-over and close-out and finalized contracts including issuance of Provisional Acceptance/Turn over Certificate (PAC/TOC), as well as administration of warranty issues until issuance of the Performance/Final Certificates.
- Reviewed Final account and made recommendations.

2016-2018 With Mott MacDonald & Gopa-Infra Consortium –

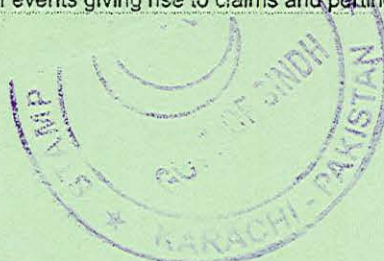
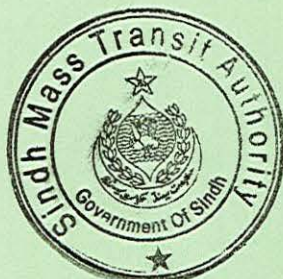
Senior Contracts & Procurement Expert

Project

Design Build Contracts for Wastewater Treatment Plans - Sustainable Rural Sanitation Services Program (SRSSP) Program for Results (PforR) funded by a World Bank Loan Agreement of USD 550 million to improve access to sustainable sanitation service delivery in approximately 155 Villages and Satellites by providing 167, 0000 household connections-HHC in three Delta Governorates of Beheira, Dakahlia and Sharkiya in Egypt.

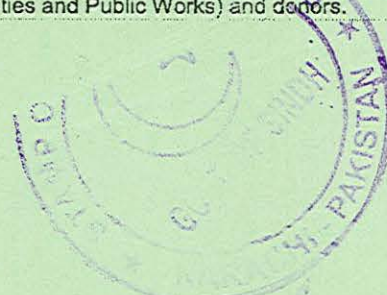
Duties and Responsibilities

- Solicited quotations and proposals from contractors & suppliers, analyzed costs and handled negotiation of offered quotations & proposals received.
- Compiled bid documents and formed contracts in coherence to accommodate projects' characteristics and administration of bid cycle.
- Established the Technical and Commercial Evaluation Criteria.
- Compiled contract documentations with managing of all related provisions, terms of payments and invitations to tenders.
- Led and Coordinated the pre-qualification of contractors and evaluation of bids (technical & commercial) as to the responsiveness and conformance to the specified criteria and all requirements of Instruction to Bidders and provisions of the bid documents.
- Managed claims procedures, mitigation of claims, contract changes, merits analysis, entitlement analysis, review and assessment of events giving rise to claims and pertinent



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	<p>particulars of contracts, negotiation and settlement of claims and issuance of variation orders.</p> <ul style="list-style-type: none"> - Minimized the potential impact of claims - Provided capacity building and training on all aspects of the project management, construction management, contract and procurement management to the client key staff of the Program Management Unit (PMU) and Projects Implementation Units (PIU). - Assisted PIU in updating procurement plans and work plans. - Continued to assist PIU in preparing bidding documents and detailed cost estimates for works, goods, and or services and putting together procurement packages; in compliance with guidelines, procedures & Regulations of World Bank & IBRD, EIB, GEF, United Nations, EBRD. - Continued to assist PIU in the bidding process for works and goods, preparation of bid evaluation reports and award of contracts. - Assisted PIU in day to day management of construction contracts, quality monitoring, verification of contractor claims, assessment of price escalations, checking revisions to contracts, etc. - Assisted to develop tender documents regarding maintenance or service contracts for specific activities, post construction maintenance of assets and other similar tasks if required. - Updated Project-level aggregate procurement plans, procurement reviews and all other procurement related documentation for PIU. - Aided PMU in project close-out, Warranty Administration, and Final Account review.
2015	<p>With United Nations Deputy Team Leader</p> <p>UN-Habitat Water Reform Project in NAJAF. Rehabilitation Programme, which included about 905 km of sewage and water systems, 2,940 km of road, Improved living conditions of approximately 50,000 IDPs and returnees through rehabilitation of more than 3,100 war-damaged houses and construction of more than 4,000 durable housing units, Rehabilitation and upgrading of public spaces and infrastructure including water and sanitation facilities, health clinics, and primary and secondary schools.</p> <p>Responsibilities included but not limited to:</p> <ul style="list-style-type: none"> - Managed the inception phase and prepared an inception report. - Prepared and present bi-monthly progress reports - Initiated, managed and assured quality of flow of data required for the Concluding Report (main deliverable). - Developed and applied a Public Private Partnership (PPP) strategy for the water sector in Iraq. - Developed and implemented contingency measures in case of lack of or inaccessible data, such as assumptions, triangulation etc. - Designed the NRW pilot area and provided training to Najaf water directorate staff to NRW policy and prepared the water balance calculation for Najaf. - Identified possible options for leakage and pressure control methodology. - Administered the assessment of economic level of leakage. - Administered the Implementation of leak detection field work for selected pilot area. - Developed a NRW reduction strategy to include details on organizational arrangements (staff number and qualifications, etc.), as well as development of policies, most appropriate procedures and most appropriate technologies, both for technical losses as well as for administrative losses. - Integrated expert input into the draft Concluding (final) Report - Provided input to the draft Concluding Report in particular on Assessment of operational efficiency and Technical Evaluation. - Prepared a strategic plan for water supply for Najaf Water Directorate. - Prepared the Final Concluding Report document (the main project deliverable) - Conceptualized Private Sector Participation input including development of an alternative profile to the national legal expert with a focus on cost-efficient service provision. - Managed the duration and quality of the consultant's outputs. - Managed coordination and cooperation with the client (UN Habitat), the beneficiary utility and other stakeholders (e.g. Ministry of Municipalities and Public Works) and donors.



	<ul style="list-style-type: none"> - Supported the Project Manager and the Liaison Officer in mobilization of the project team and all project resources (e.g. experts, offices, vehicles, funds and material). - Managed the project team in coordination with the other experts, RODECO, the beneficiary utility and the client - Monitored and tracked the project strategy and planning (e.g. work programme, assignment schedule, budget, targets) in coordination with the RODECO. - Monitored project progress and impacts and supported during project progress review(s) according to UN requirements and standards. - Managed project cash and accounts. - Managed project logistics and administration (incl. management of local contracts)
2012-2016	<p>With Turner International & Emaar consortium –</p> <p><u>Senior Contracts & Procurement Manager and Deputy Program Manager</u></p> <p>Project</p> <p>Design and Build Contract - Marassi Program management in Sidi Abdel Rahman North Coast, Marassi covers a surface area of roughly 6.5 million square meters with total investment for the development is around 600 million USD. The Project included international hotels and 6-kilometer-long beachfront. A town marina widely considered to be one of the largest touristic and residential projects in Egypt and the Arab world, Marassi's numerous villas were modeled on designs developed specifically by Armani. The town also maintains a number of other commercial and residential units designed according to different architectural styles and sizes.</p> <p>Duties and Responsibilities</p> <ul style="list-style-type: none"> - Managed design, coordinated and developed design scope, monitored design effort and conducted design review at (30, 60 90, 100%), reviewed constructability/Maintainability/Operability, and conducted value engineering. - Solicited quotations and proposals from contractors & suppliers, analyzed costs and handled negotiation of offered quotations & proposals received. - Compiled bid documents and formed contracts in coherence that accommodates projects' characteristics and administration of bid cycle. - Compiled the Technical and Commercial Evaluation Criteria. - Compiled contract documentations with managing of all related provisions, terms of payments and invitations to tenders. - Led and Coordinated the pre-qualification of contractors and evaluation of bids (technical & commercial) as to the responsiveness and conformance to the specified criteria and all requirements of Instruction to Tenders and provisions of the bid documents. - Managed claims procedures, mitigation of claims, contract changes, merits analysis, entitlement analysis, review and assessment of events giving rise to claims and pertinent particulars of contracts, negotiation and settlement of claims and issuance of variation orders. - Reviewed Bonds "Advance Payment, Performance Bonds". - Reviewed progress payments and provided recommendation to client in compliance with the terms of payment and contracts provisions. - Administered various contracts to ensure that all contract provisions are implemented. - Maintained records of all project's documents, correspondence, etc. - Prepared and issued Change Orders and Contract Addenda so as to incorporate change orders under the contracts' provisions. - Evaluated information from contractors, subcontractors and identified expected area of problems that could have an impact upon work progress. - Coordinated and drafted the construction management forms required to monitor and control different construction trades and implementation with quality management plan (QMP). - Monitored the rectification of the snag list items. - Coordinated projects Handing-Over and close-out and finalized Contracts including issuance of Taking Over Certificates.
2009-2012	<p>With Jacobs/CH2M HILL –</p> <p><u>Senior Procurement & Contracts Manager</u></p>



Project

Follow-on Program Management Support Services for Remediation and Restoration Of Terrestrial and Coastal Resources funded by UNCC with a value US \$ 1.4 billion. The purpose of the Follow-on Program Management Support Services is to support the PME managing and supervising the execution of the Kingdom of Saudi Arabia Remediation and Restoration Program and assure compliance with UNCC guidance.

Duties and Responsibilities

- Solicited quotations and proposals from contractors & suppliers, analyzed costs and handled negotiation of offered quotations & proposals received.
- Liaised between stakeholders in all issues related to contract.
- Prepared and maintained updates of contracts chronologies, contractors' invoices, action status reports.
- Reviewed Bonds "Advance Payment, Performance Bonds".
- Led contract administration of the Contracts.
- Reviewed time schedules and cash flow and provided recommendation.
- Reviewed cost analysis, budget development and expenditure plan approval by the client.
- Addressed and clarified the applicable contracts laws and procurements procedures.
- Managed and maintained documents control for records.
- Led and reviewed translation of contracts for final issuance and processing.
- Reviewed payments for contractors, consultants and delivered and followed up on all invoices with PME until issuance of related checks.
- Prepared invitation letters for the prospective bidders.
- Reviewed change orders with the technical team and followed up on their processing.
- Liaised and communicated with Ernest and Young and KPMG accountants & auditors for preparation of the final projects and administration of financial reports.
- Coordinated project close out and finalized contracts with the technical team until issuance of close out memorandum for contracts.
- Administered warranties and Final Account review.

2001-2009 With Dar

Senior Procurement & Contracts Manager

2006 – 2009

Project

Design and Build Contract – Saudi Arabia Khafji Joint Operation – KJO (Kuwait Gulf Oil Company & Aramco Gulf Operations), Master Plan Project & IT Master Plan and Oil and Gas Projects for the Company's Oil/Gas fields of Khafji, Hout, Dorra and Lulu and other places of the Company's Concession Area of the divided ex-Neutral Zone between Saudi Arabia and Kuwait ("service area") with a preliminary value US \$ 5 billion that include the following packages: Office Park, MTD & Work Shops Package, Community Package, **Infrastructure Package**, Home Ownership Package, IT Master Plan for Facilities, Storage Tanks, and Gas & NGL Facilities.

Duties and Responsibilities

- Acted as a lead member of CRC (Claims Review Committee) with Aramco
- Solicited quotations and proposals from contractors & suppliers, analyzed costs and handled negotiation of offered quotations & proposals received.
- Prepared bid documents and forming contracts in coherence that accommodates projects' characteristics and administration of bid cycle.
- Compiled the Technical and Commercial Evaluation Criteria.
- Compiled contract documentations with managing of all related provisions, terms of payments and invitations to tenders.
- Led and Coordinated the pre-qualification of contractors and evaluation of bids (technical & commercial) as to the responsiveness and conformance to the specified criteria and all requirements of Instruction to Bidders and provisions of the bid documents.
- Managed claims procedures, mitigation of claims, contract changes, merits analysis, entitlement analysis, review and assessment of events giving rise to claims and pertinent particulars of contracts, negotiation and settlement of claims and issuance of variation orders.



- Evaluated information from contractors, subcontractors and identifying of expected area of problems that could have an impact upon work progress.
- Coordinated and drafted the construction management forms required to monitor and control different construction trades and implementation with quality management plan (QMP).
- Monitored the rectification of the punch list items.
- Coordinated projects Handing-Over and close-out and finalized Contracts including issuance of Provisional Acceptance Certificate (PAC), Performance Acceptance Certificate.

2001 – 2006**Project**

Design and Build Contract - Terminal Building No.3 (TB3) Cairo International Airport Project with a preliminary value US \$ 400. Funded by World Bank - International Bank for Reconstruction and Development (IBRD).

Duties and Responsibilities:

- Managed design, coordinated and developed design scope, monitored design effort and conducted design review at (30, 60 90, 100%), reviewed constructability/Maintainability/Operability, and conducted value engineering.
- Solicited quotations and proposals from contractors & suppliers, analyzed costs and handled negotiation of offered quotations & proposals received.
- Prepared bid documents and forming contracts in coherence that accommodates projects' characteristics and administration of bid cycle.
- Compiled the Technical and Commercial Evaluation Criteria.
- Compiled contract documentations with managing of all related provisions, terms of payments and invitations to tenders.
- Led and Coordinated the pre-qualification of contractors and evaluation of bids (technical & commercial) as to the responsiveness and conformance to the specified criteria and all requirements of Instruction to Bidders and provisions of the bid documents.
- Managed claims procedures, mitigation of claims, contract changes, merits analysis, entitlement analysis, review and assessment of events giving rise to claims and pertinent particulars of contracts, negotiation and settlement of claims and issuance of variation orders.
- Evaluated information from contractors, subcontractors and identifying of expected area of problems that could have an impact upon work progress.
- Coordinated and drafted the construction management forms required to monitor and control different construction trades and implementation with quality management plan (QMP).
- Monitored the rectification of the punch list items.
- Coordinated projects Handing-Over and close-out and finalized Contracts including issuance of Provisional Acceptance Certificate (PAC), Performance Acceptance Certificate.

1997-2001

**With Parsons International –
Project Manager**

13 Contracts for Dreamland Projects with a preliminary value US \$ 500 million/ 2000 Acre including the renovation of Proctor and Gamble Headquarters in Egypt.

Duties and Responsibilities:

- Managed design, coordinated and developed design scope, monitored design effort and conducted design review at (30, 60 90, 100%), reviewed constructability/Maintainability/Operability, and conducted value engineering.
- Led and Coordinated the pre-qualification of contractors and evaluation of bids (technical & commercial) as to the responsiveness and conformance to the specified criteria and all requirements of Instruction to Bidders and provisions of the contract.
- Compiled contract documentations with managing of all related provisions, terms of payments and invitations to tenders.
- Managed claims procedures, contract changes, merits analysis, entitlement analysis, review and assessment of events giving rise to claims and pertinent particulars of contracts, negotiation and settlement of claims and issuance of variation orders.
- Administered the various contracts (13 contract) to ensure that all contract provisions are implemented.
- Maintained records of all project's documents, correspondence etc.



	<ul style="list-style-type: none"> - Evaluated information from suppliers, contractors, subcontractors and identified expected area of problems that could have an impact upon work progress. - Frequent reviewed and physically verified supplier status reports and packing lists are accurate and confirmed if the order moves in accordance with milestone schedule. - Established a quality assurance & control plan for the electro-mechanical installation and acceptance procedures of 35 flying and rotating structures supplied and installed by 13 American and European suppliers involving TUV organization as a third party. - Prepared and reviewed progress payments and provided recommendation to client in compliance with the terms of contract. - Established and monitored rectification of the punch list items. - Monitored and started up activities and preparing test reports. - Coordinated for third party inspection and issuance of Provisional Acceptance Certificate (PAC).
1995-1997	Dr. Ahmed Abdel Warith (AAW) Consulting Engineers Organization Project Manager Project: Bristol Myers Squib Egypt. – Pharmaceutical Plant Expansion project of value U.S.D. 40 million Dow Egypt Systems House in 10th of Ramadan Petrochemical Plant (on shore) of value U.S.D. 30 million
1992-1995	USAID, CDM and BLACK&VETCH-American British Consortium (AMBRIC) with P.B. Sabbour Associates Supervision Construction Engineer Project: Greater Cairo Waste Water Project with all related pipeline, Household Connections-HHC systems <u>of value U.S. \$. 1.5billion</u> Implemented with Reference to FAR(Federal Acquisition Regulation).
1990-1991	USAID, CDM and BLACK&VETCH-American British Consortium (AMBRIC) with P.B. Sabbour Associates Supervision Construction Engineer Project: Greater Cairo Waste Water Project with all related pipeline, Household Connections-HHC systems <u>of value U.S. \$. 1.5billion</u> Implemented with Reference to FAR(Federal Acquisition Regulation).
1987-1989	Sadelmi Cojipy under Kinndy& Donkin Construction Engineer Project: Attaka Steam Power Plant 990 MW / 4 units in Suez Governorate with all related pipe line systems, gas processing units of value \$ 700 million. Duties and Responsibilities: Performing various construction management duties to include construction progress reporting, supervisions and monitoring different site trades.

Expert's contact information: Email: ibrahim_haddad231@yahoo.com

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank

Name of Expert: Ibrahim Ahmed Haddad
 Name of Authorized Representative: BASSAM T. SHAKHSHIR

Date: 18/12/2020

Date: 18/12/2020



(CONTINUED)
CURRICULUM VITAE (CV)

Position Title and No. : Senior Contract Management Specialist
Name of Expert: BILAL NOOR
Date of Birth: 04/12/1979
Country of Citizenship/Residence : Pakistani / U. A. E.

Education:

LLM (Master of Laws), Construction Law and Arbitration, Robert Gordon University, Aberdeen, Scotland, UK, 2016
BE, Civil Engineering, University of Engineering and Technology, Taxila, Pakistan, 2002

Employment record relevant to the assignment:

Period	Employing Organisation and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
2012 to date	Dar Al-Handasah Consultants (Shair and Partners) Senior Contract Management Specialist	United Arab Emirates / Oman	providing contractual analysis and support, and evaluating variations and claims, for Bibid Sur road, Dubai International Airport and Al Maktoum International (Dubai World Central - DWC) Expansion Programmes.
2011 - 2012	Saudi Binladin Group (SBG), Riyadh Senior Planning/Contracts Engineer	Saudi Arabia	Preparing contractor's claims, assisting in preparing contractor's payment invoices for King Abdullah Financial District Project, Riyadh, Saudi Arabia.
2006 - 2010	Haji Noor Engineers and Co. Project/Contracts Engineer	Pakistan	Preparing and presenting extension of time and prolongation cost claims. Preparing correspondences and maintaining records necessary, Negotiating price, terms and conditions for new and existing Contracts and preparing interim payments certificates for various projects in Pakistan
2002 - 2005	National Engineering Services of Pakistan (NESPAC) Planning/Civil Engineer	Pakistan	preparing prequalification documents, RFP, and contract documents, evaluating bid evaluation reports, and managing contract negotiation process

Membership in Professional Associations and Publications:

Pakistan Engineering Council, since 2002. Registration No. CIVIL/22812

Saudi Council of Engineers, since 2011. Registration No.100603

Language Skills	Reading	Writing	Understanding
English	Excellent	Excellent	Excellent
Urdu	Excellent	Excellent	Excellent

Adequacy for the Assignment:

Detailed Tasks Assigned:

Refer to TECH-5
and TECH-6

Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks

Since 2012 With Dar Al-Handasah Consultants (Shair and Partners), Project Management & Contracts Dept.

2012 to date Senior Contract Management Specialist

Projects:

-Dubai International Airport Expansion Project, Dubai, UAE

Responsible for claims/contract management of multiple projects within, out of which the following are mentioned:

- AX014 – Aprons around Concourse 3; comprises realignment of Aircraft Stand Taxiway Zulu to suit Code F aircraft operations and the extension of Taxiway Juliet to the South and East of Concourse 3 and the completion of the East GSE Road and associated services and fencing Works.



(CONTINUED)
CURRICULUM VITAE (CV)

- Project Duration: 25 Months
- AX065 – Passenger Loading Bridges (PLBs) to Terminal 3, Concourse 2 and 3; Aprons around Concourse 3; comprises the design, manufacture, installation, start of & testing of **Passenger loading Bridge (PLB)** and **Integrated Aircraft Stand System (IASS)** at Terminal III, Concourse II and Concourse III.
- Project Duration: 78 Months
- SP500 – Concourse 4 & Associated Projects; comprises construction of a new concourse at Dubai International Airport (DIA), connected to Terminal 1 and serving foreign airlines, Stands and Apron works surrounding Concourse 4 (C4), upgrade of the existing Terminal 1 (T1), associated Support Facilities and the APM system and Stations connecting C4 and T1 along with associated civil works in addition to the demolition of the existing Support Facilities currently occupying the future Concourse 4 Apron areas.
- Project Duration: 32 Months
- AX466 – Superstructure, MEP, SAS, Finishes and Site Works for Terminal 2 Expansion; comprises Multiphase expansion and refurbishment of existing Terminal 2 facilities at the Dubai International Airport, Expansion to the western side of the existing Terminal 2 building to house new check in area, and departure BHS facility, **External site work, including reconfiguration of roadway leading to Terminal 2 departures, surface car park and landscaping**, Refurbishment of existing Terminal 2 facilities including boarding lounges, departures hall, arrivals hall and customs/immigration facilities and additional retail concessions including food and beverage areas, Dubai Duty Free and VIP/CIP lounge.
- Project Duration: 24 Months

- Al Maktoum International Airport Construction Project, Dubai, UAE

Responsible for claims/contract management of multiple projects out of which following are some major projects:

- AMI250 – Al Maktoum International Airport Phase 1 – Construction Logistics Package; comprises 5 packages related to **Roads and Utilities**, Permanent and Temporary fence, Offices and other facility buildings, Site security and Temporary utilities (Interface Substations).
- Project Duration: 31 Months
- SP/DWC/723 – Passenger Terminal Building (PTB) – Airfield Works at Al Maktoum International Airport; comprises construction of 23 new stands, new/upgrade of GSE roads, **two new Taxi lanes and their infrastructure works** and Reconfiguration of Stands located at North, East, West and South Apron.
- Project Duration: 11 Months
- Dubai World Central Corporation (DWCC), Dubai South Projects, Dubai, UAE
Responsible for claims/contract management of the following project:
- RFP099/LD/17 – Construction of Irrigation & Fire Fighting Pumping Stations for DLC and **Peripheral Road** at Dubai Logistic District; comprises construction of seven pumping stations, water tanks, ancillary buildings, access roads, parking area, fencing, associated works and testing and commissioning of complete irrigation & firefighting network including existing network.
- Project Duration: 34 Months
- Dualization of Bidbid – Sur Road, Ministry of Transport & Communications, Oman
Responsible for claims/contract management of the following projects:
- Dualization of Bidbid – Sur Road (Package 1A); comprises construction of 40 KM of dual 3 lanes road and two major bypasses, earthworks including cut and fill in mountains, piling works and foundations, main and services roads, **interchanges, underpasses bridges, wadi bridges, culverts**, additional protection and cut slopes, retaining walls, geotechnical investigation, **Storm water and drainage**, Weigh Station, Permanent Traffic count stations, street lights, signing and road marking.
- Project Duration: 36 Months
- Dualization of Bidbid – Sur Road (Package 1B); comprises construction of 75 KM of dual 3 lanes road and one major bypass, **nine interchanges, service road (around 50 KM), four crossings, one underpass and three overpasses.**
- Project Duration: 36 Months

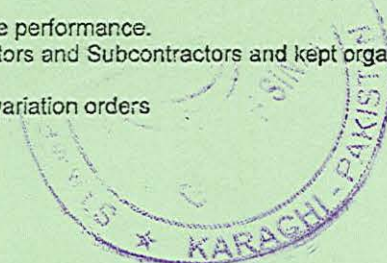
- Office & Residential Buildings for Public Authority for Social Insurance at Baushar, Oman

Responsible for claims/contract management of the following project:

- Mixed Use Development at Baushar, Muscat; comprises construction of basement levels, PASI HQ building, office buildings, residential buildings and the trades included in the various buildings and structures comprise architectural, interior finishes, structural, mechanical, electrical, telecommunication and the like, **soft and hard landscaping, external parking, roads and infrastructural works.**
- Project Duration: 30 Months

Responsibilities and Duties:

- Provided contractual analysis and interpretation on project contractual issues, developed and derived resolution to closure.
- Communicated risks and requirements of Contracts.
- Responded to wide-ranging requests from the Employer and the Engineer's Site Team for all type of Contracts support.
- Identified areas for improvement to continually drive performance.
- Produced and maintained contracts for all Contractors and Subcontractors and kept organized records of all correspondence between all parties.
- Assisting in evaluation of time and cost impact of variation orders



(CONTINUED)
CURRICULUM VITAE (CV)

- Provided regular support for all Construction Managers as well as liaison with the Employer.
- Reviewed and provided essential input on EOT assessment reports prepared by the Engineer.

2011 - 2012 With Saudi Binladin Group (SBG), Riyadh, Saudi Arabia,

Senior Contracts & Planning Engineer.

Worked on **Infrastructure** and buildings in King Abdullah Financial District Project, Riyadh, Saudi Arabia. The project consists of 120 high rise structures with all related **infrastructure works**, underground parking, **mono rail system**, skywalks and walkover bridges connecting towers, tunnels, and other facilities.

Responsible for claims/contract management along with planning and scheduling of the following works:

King Abdullah Financial District Zone 5 is the development of Infra-structure and is divided into the three following Packages;

- C01A-Earthworks (Attractors/Parcel Excavation & Road Grading):
 - Project Duration: 26 Months
 - Excavation/Grading Quantity: 3,394 million Cu.M.
- C01B-Utility Tunnel (RCC Structure Utility Tunnel, Equipment Rooms & MEP Works)
 - Project Duration: 16 Months
 - Length of Tunnel: 1960 LM
- C01C-Subterranean Tunnel (Includes RCC Structure Utility Tunnel below Subterranean Tunnel connecting all Financial Plaza Towers includes; Sub Roads, Bridge Deck and MEP Works)
 - Project Duration: 24 Months
 - Length of Utility Tunnel: 1632 LM
 - Length of Subterranean Road: 1679 LM

5 Commercial Towers in King Abdullah Financial District Zone 1.

Duties and responsibilities:

- Prepared Master Schedule for Client at the preliminary stage of the Project.
- Tracked contract funding, performed a risk assessment and assisted in the development of risk mitigation strategies.
- Recognized contractual issues in program performance, implemented solutions, while exercising fair judgement of obligations.
- Carried out Variation and Change Control Management.
- Implemented Project Control Forms to have an overview of the Project.
- Reviewed Bidder's Execution Schedules & Consultant Design Schedule and accordingly, prepared Evaluation Report for Employer's review.
- Prepared weekly and Monthly Progress Reports for Employer's review.
- Supported Quantity Surveying Team in preparation Interim Payments Certificates based on weekly/monthly progress look ahead charts.
- Prepared time (EOT) and prolongation cost claims for establishing any Contractor's EOT entitlement.
- Presented to the Employer/ Engineer contractor's claims and entitlement.

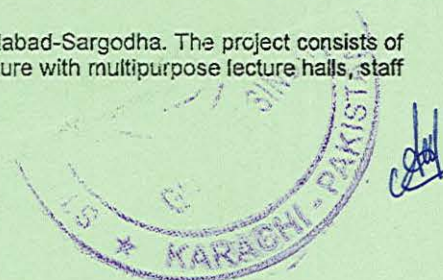
2006 - 2010 With Haji Noor Engineers and Co., Pakistan,

Project/Contracts Engineer.

Worked on the following projects in Pakistan:

- Faculty Office Block-1, COMSATS, Chak Shahzad, Islamabad. RCC frame structure 7,500 m² building, consisting of flat slab and structural steel canopies, basement level for car-parking, and 5 upper floors.
- Wedding Halls in Wapda Town, Lahore. RCC frame structure 3,000 m² building, consisting of waffle slab, ribbed slab, structural steel beams and columns, basement level for car-parking (180 stalls), and 2 upper floors.
- Rehabilitation/Upgrading of WAH Hospital in Taxila, including a 1,200 m² emergency and CCU department.
- Additional Nursing Block in Shaikh Zayed Hospital, Lahore. RCC frame structure 2,700 m² building with lecture halls, laboratories, cafeteria and other amenities.
- Welfare Schools for Punjab Workers' Boys and Girls, Faisalabad-Sargodha. The project consists of 4 school buildings each of double-storey load bearing structure with multipurpose lecture halls, staff room, offices and play areas.

Duties and responsibilities:



(CONTINUED)
CURRICULUM VITAE (CV)

- Prepared correspondences and maintained records necessary to ensure the effective administration of all Contractual matters.
- Coordinated with Sub-Contractors to address their issues and discussed working strategies, to enhance work progress.
- Negotiated price, terms and conditions for new and existing Contracts and Subcontracts.
- Reviewed, analyzed, drafted and negotiated terms and conditions for all sub-contract awards utilizing Main Contract guidelines.
- Analyzed contract terms and conditions and monitored compliance.
- Managed Project Planning, Preparation of Interim Payments, Monthly Schedules, Weekly/Monthly Progress Reports.
- Reviewed Shop Drawings and coordinated with the concerned team before submission to the Engineer for approval.
- Reviewed I.P.C's before final submission to the Employer/Engineer.
- Reviewed and recommended payment certificates submitted by the Sub-contractors.
- Prepared Extension of Time and Cost Claims for Employer/ Engineer review and approval.
- Monitored and managed the monthly consumption of Construction Materials required.

2002 - 2005 With National Engineering Services of Pakistan (NESPAK), Pakistan,

Planning/Civil Engineer.

Worked on various projects in Pakistan, including Lahore Gymkhana Club golf clubhouse and ladies swimming pool, and the retrofitting works for Shaikh Zayed Hospital existing HVAC system.

Duties and responsibilities:

- Reviewed Contractor's/Consultant's Prequalification Document as per agreed selection criteria.
- Reviewed Tender Drawings related to Structure, Architecture, MEP, External Façade, Vertical Transportation and External Landscape & Hardscape Works, before final issuance to the Contractor.
- Reviewed and addressed Tenderers queries and accordingly, prepared Addendums for issuance to the Tenderers.
- Reviewed Bids on Technical/Contractual grounds, issued comments to the Tenderers and accordingly, coordinated with them.
- Prepared BID Evaluation Report and Evaluation Matrices based on Technical and Contractual Submission.
- Conducted Pre/Post Tender Clarification Meetings and Kick-off Meetings with Tenderers/Contractors.
- Prepared, coordinated and managed contract negotiation process. Identified and evaluated opportunities and financial terms for assigned contracts.
- Prepared RFP's for Engineering Consultants and Designers.
- Coordinated with JV Consultants in preparation/issuance of RFI's for construction feasibilities from vendors or suppliers, to conform to Client and Project requirement.
- Prepared Contracts and Cost Volume narratives for solicitation responses.
- Prepared updates and submitted progress reports to the client concerning the status of the work on a monthly basis.

Managed Project Planning & Scheduling, Monthly Schedule Updates and Weekly/Monthly Progress Reports for Employer's review.

Recommended final assessment and evaluation of the Payment Certificate submitted by the Contractors.

Expert's contact information: email: Bilal.Noor@dar.com, phone:

Certification:

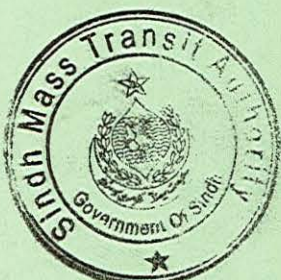
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

Name of Expert: BILAL NOOR

Date: 10/01/2021

Name of authorized Representative: BASSAM T. SHAKHSHIR

Date: 10/01/2021



Appendix C – Breakdown of Contract Price



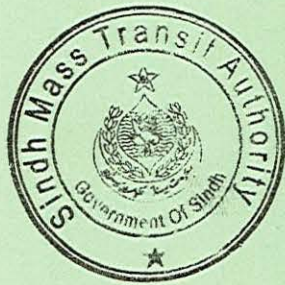
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Form FIN 2: Summary of Costs PHASE 1

Item	Cost	
	USD	Overall Total in Pakistani Rupee
Cost of the Financial Proposal Phase 1		
Including:		
(1) Remuneration for Phase 1	\$ 1,881,221	PKR 78,556,200
(2) Reimbursables for Phase 1	\$ 110,914	PKR 85,392,777
(3) Reimbursable for Training during Phase 1 (Provisional Sum)	\$ 30,000	
Sub-Total for Phase 1	\$ 2,022,135	PKR 163,948,977
Total Cost of the Financial Proposal:	\$ 2,022,135	PKR 163,948,977
Local Tax Estimates		
VAT (13%)	\$ 262,878	PKR 21,313,367
Stamp Duty Fee (0.35%)	\$ 7,077	PKR 573,821
Withholding Tax (15%) on Non Resident Experts	\$ 303,320	
Total Taxes	\$ 573,275	PKR 21,887,188
Overall Total for Phase 1 Including Taxes	\$ 2,595,410	PKR 185,836,166

Notes:

USD to be paid in PKR as mentioned by the Consultant in Financial Proposal has been included in the PKR Component with a conversion rate of 1USD = 160.0152 PKR dated January 8, 2020 (i.e. 7 days prior to submission of proposal) published by the State Bank of Pakistan which is in accordance and in compliance to the ITC 26.1 of the RFP and agreed minutes of negotiations.



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FORM FIN-3 BREAKDOWN OF REMUNERATION - PHASE 1

A. Remuneration								
No.	Name	Position (as in TECH-6)	Person-month Remuneration Rate			Time Input in Person/Month (from TECH-6)	Total in USD	Total in Pakistani Rupee
				USD	Pakistani Rupee			
Key Experts								
K-1	Bahjat Ghandour	Senior Urban Road & BRT System Expert / Team Leader Design	[Home]	14,550		3.00	43,650	
			[Field]	16,005		9.00	144,045	
K-2	Claudio Macedo	Senior BRT Design Expert	[Home]	22,000		3.00	66,000	
			[Field]	27,500		9.00	247,500	
K-3	Gamal Helmy	Senior Structural / Bridge Design Engineer	[Home]	14,550		8.50	123,675	
			[Field]	16,005		0.50	8,003	
K-4	Islam Mamdouh	Senior Pavement Design Engineers	[Home]	11,450		5.75	65,838	
			[Field]	12,595		0.25	3,149	
K-5	Ibrahim Haddad	Senior Procurement Specialist	[Home]	11,450		2.00	22,900	
			[Field]	12,595		7.00	88,165	
K-6	Bilal Azam	Senior Contract Management Specialist	[Home]	6,807		2.00	13,614	
			[Field]	7,488				
Non-Key Experts								
N-1	Rehan Zamin	Project Manager	[Home]					
			[Field]		1,002,700	6.00		6,016,200
N-2	Tayyabah Majid	Urban Space Management Specialist	[Home]					
			[Field]		501,500	6.00		3,009,000
N-3	Samch El-Agawani	Architect	[Home]	11,450		6.00	68,700	
			[Field]	12,595				
N-4	Abduralhuan Harb	Senior Traffic Engineer	[Home]	11,450		8.50	97,325	
			[Field]	12,595		0.50	6,298	
N-5	Amr Abdel Hai	BIM Specialist	[Home]	11,450		9.00	103,050	
			[Field]	12,595				
N-6	Muhammad Umer	Drainage Engineer	[Home]					
			[Field]		725,500	6.00		4,353,000
N-7	Walid Hammad	Geotechnical Engineer	[Home]	11,450		5.75	65,838	
			[Field]	12,595		0.25	3,149	
N-8	Irfan Akram	Utilities Engineer	[Home]					
			[Field]		501,500	6.00		3,009,000
N-9	Ali Ayyoubi	Traffic Safety Engineer	[Home]	12,600		6.00	75,600	
			[Field]	13,860				
N-10	Muhammad Ramzan	Environmental Safeguards Specialist	[Home]					
			[Field]		725,500	5.00		3,627,500
N-11	Saeed Hussain	Social Safeguard Specialist	[Home]					
			[Field]		501,500	5.00		2,507,500
N-12	Hassan Handy	Electrical Engineer	[Home]	11,450		3.00	34,350	
			[Field]	12,595				
N-13	Ahmed Abd Rahman	Mechanical Engineer	[Home]	11,450		3.00	34,350	
			[Field]	12,595				
N-14	Hussein Shawer	HVAC Engineer	[Home]	11,450		3.00	34,350	
			[Field]	12,595				
N-15	Martin Wedderburn	NMT Specialist	[Home]	15,000		4.50	67,500	
			[Field]	16,500		0.50	8,250	
N-16		Support Engineers (DAR)	[Home]	6,900		37.00	255,300	
			[Field]					
N-17		Support Staff (DAR)	[Home]	5,350		37.50	200,625	
			[Field]					
N-18		Support Engineers (NESPAK)	[Home]					
			[Field]		460,800	83.75		38,592,000
N-19		Support Staff (NESPAK)	[Home]					
			[Field]		244,800	71.25		17,442,000
Total Costs						363.50	\$ 1,881,221	PKR 78,556,200



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Form FIN-4 Breakdown of Reimbursable Expenses - PHASE 1

Form FIN 2: Summary of Costs

B. Reimbursable Expenses							
Nº	Type of Reimbursable Expenses	Unit	Unit Cost in USD	Unit Cost in PKR	Quantity	Total USD	Overall Total in Pakistani Rupee
1	International Flights						
	Cairo - Karachi - Cairo	Trip	880		15	13,200	
	San Paulo - Karachi - San Paulo	Trip	2260		5	11,300	
	London - Karachi - London	Trip	1110		2	2,220	
2	Staff Accomodation*	Month		800,076	12		9,600,912
3	Workshops/Seminars*	Nr.		576,055	6		3,456,328
4	Per diem*	MM		276,026	27		7,452,708
5	Local Transportation*	MM		276,026	27		7,452,708
6	Traffic Surveys	L.S		2,640,000	1		2,640,000
7	Topographic Surveys	L.S		2,976,000	1		2,976,000
8	Geotechnical Investigation	L.S		27,888,000	1		27,888,000
9	EIA Surveys	L.S		664,000	1		664,000
10	Structural Testing	L.S		7,660,800	1		7,660,800
11	Drafting and Reproduction of Reports and Communications	L.S	84194	1,696,000	1	84,194	1,696,000
12	Salaries for 20 Trainees*	MM		46,404	240		11,137,058
13	Desktops for 20 Trainees*	Nr.		138,413	20		2,768,263
Total Costs						\$ 110,914	PKR 85,392,777

Notes:

The items above with * were mentioned in "USD to be paid in PKR" by the Consultant in Financial Proposal and has been converted in the PKR Component with a conversion rate of 1USD = 160.0152 PKR dated January 8, 2020 (i.e. 7 days prior to submission of proposal) published by the State Bank of Pakistan which is in accordance and in compliance to the ITC 26.1 of the RFP and agreed minutes of negotiations.



[Signature]

[Signature]

Breakdown of Agreed Fixed Rates in Consultant’s Contract



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Consultant Representations Regarding Costs and Charges (Model Form I) Phase 1										FINAL ADJUSTMENT				
We hereby confirm that we have agreed to pay to the Experts listed, who will be involved in performing the Services, the basic fees and away from the home office allowances (if applicable) indicated below:														
Personnel		1	2	3	4	5	6	7 (Home)	8 (Field)					
Name	Position	Basic Remuneration rate per working month	Social Charge - 1	Overhead - 2	Sub-Total	Profit	Away from Home Office Allowance	Proposed Fixed Rate per Working Month	Proposed Fixed Rate per Working Month	Sub-Total	Adj. Check	Proposed Fixed Rate per Working Month	Adj. Check	Proposed Fixed Rate per Working Month
Blasat Qandaz	Sr. Urban Road & BRT Systems Expert / Team Leader Design	\$4,274	\$1,710	\$6,667	\$12,651	\$1,898	\$1,455	\$14,550	\$16,005	\$12,651.00	\$0	14,549.00	(\$1)	16,004.00 (\$1.00)
Clasido	Sr. BRT Design Expert	\$6,463	\$2,585	\$10,082	\$19,130	\$2,870	\$5,500	\$22,000	\$27,500	\$19,130.00	\$0	22,000.00	\$0	27,500.00 \$0.00
Osaid Hakey	Sr. Structural / Bridge Design Engg	\$4,274	\$1,710	\$6,667	\$12,651	\$1,898	\$1,455	\$14,550	\$16,005	\$12,651.00	\$0	14,550.00	(\$1)	16,005.00 (\$1.00)
Islam Munebela	Sr. Pavement Design Engg	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Binahim Haddad	Sr. Procurement Specialist	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Elial Azam	Sr. Contract Mgt Specialist	\$2,000	\$800	\$3,120	\$5,920	\$888	\$681	\$6,807	\$7,488	\$5,920.00	\$0	6,808.00	\$1	7,489.00 \$1.00
Tamash Elagomaw	Architect	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Abdur Rahman Faris	Sr. Traffic Engg	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,453.00	\$2	12,597.00 \$2.00
Azar Abdel Ha	RTM Specialist	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Walid Hamoud	Geotechnical Engg	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Ali Ayoub	Traffic Safety Engg	\$3,702	\$1,481	\$5,775	\$10,958	\$1,644	\$1,260	\$12,600	\$13,860	\$10,958.00	\$0	12,602.00	\$2	13,862.00 \$2.00
Hassan Hamey	Electrical Engg	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Ahmed Abd Rahman	Mechanical Engg	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Hassan Shawa	HVAC Engg	\$3,364	\$1,346	\$5,248	\$9,958	\$1,494	\$1,145	\$11,450	\$12,595	\$9,958.00	\$0	11,452.00	\$2	12,597.00 \$2.00
Martin Waddelburn	NMT Specialist	\$4,407	\$1,763	\$6,875	\$13,045	\$1,957	\$1,300	\$15,000	\$16,500	\$13,045.00	\$0	15,002.00	\$2	16,502.00 \$2.00
	Support Engineers (DAR)	\$2,027	\$811	\$3,162	\$6,000	\$900		\$6,900		\$6,000.00	\$0	6,900.00	\$0	
	Support Staff (DAR)	\$1,572	\$629	\$2,452	\$4,653	\$698		\$5,350		\$4,653.00	\$0	5,351.00	\$1	
Richard Turner	Project Manager	PKR 878,572	PKR 127,845	PKR 405,132	PKR 901,547	PKR 91,155		PKR 1,002,700		PKR 911,547	PKR 0	PKR 1,002,702	PKR 2	
Remonnet Javed	Environmental Expert	PKR 271,887	PKR 94,535	PKR 293,121	PKR 659,523	PKR 65,952		PKR 725,500		PKR 659,523	PKR 0	PKR 725,475	PKR 25	
Abdumunem Umar	Sr. Drainage Expert	PKR 271,887	PKR 94,535	PKR 293,121	PKR 659,523	PKR 65,952		PKR 725,500		PKR 659,523	PKR 0	PKR 725,475	PKR 25	
Ufso Aman	Sr. Utilities Engineer	PKR 183,420	PKR 69,867	PKR 202,630	PKR 455,917	PKR 45,592		PKR 501,500		PKR 455,917	PKR 0	PKR 501,500	PKR 9	
Udaysh Majid	Urban Space Specialist	PKR 183,420	PKR 69,867	PKR 202,630	PKR 455,917	PKR 45,592		PKR 501,500		PKR 455,917	PKR 0	PKR 501,500	PKR 9	
Shahid Hussain	Secretary	PKR 183,420	PKR 69,867	PKR 202,630	PKR 455,917	PKR 45,592		PKR 501,500		PKR 455,917	PKR 0	PKR 501,500	PKR 9	

SIGNATURE
NAME & TITLE
DATE



APPENDIX D - FORM OF ADVANCE PAYMENTS GUARANTEE*[See Clause GCC 42.2.1 and SCC 42.2.1]**{Guarantor letterhead or SWIFT identifier code}***Bank Guarantee for Advance Payment****Guarantor:** _____ *[insert commercial Bank's Name, and Address of Issuing Branch or Office]***Beneficiary:** _____ *[insert Name and Address of Client]***Date:** _____ *[insert date]***ADVANCE PAYMENT GUARANTEE No.:** _____ *[insert number]*

We have been informed that _____ *[name of Consultant or a name of the Joint Venture, same as appears on the signed Contract]* (hereinafter called "the Consultant") has entered into Contract No. _____ *[reference number of the contract]* dated _____ *[insert date]* with the Beneficiary, for the provision of _____ *[brief description of Services]* (hereinafter called "the Contract").

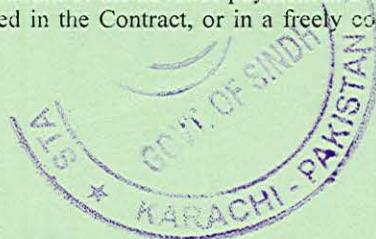
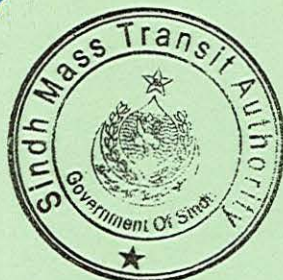
Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum of _____ *[insert amount in figures]* (_____) *[amount in words]* is to be made against an advance payment guarantee.

At the request of the Consultant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ *[amount in figures]* (_____) *[amount in words]*¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's a written statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Consultant is in breach of its obligation under the Contract because the Consultant:

- (a) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Consultant has failed to repay;
- (b) has used the advance payment for purposes other than toward providing the Services under the Contract.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Consultant on their account number _____ at _____ *[name and address of bank]*.

¹ The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Client.



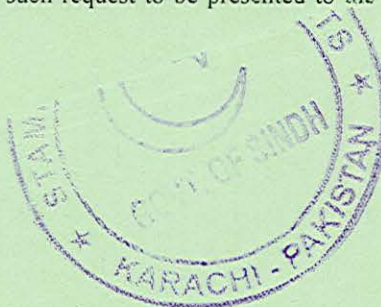
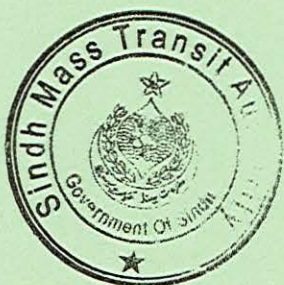
The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Consultant as indicated in certified statements or invoices marked as "paid" by the Client which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of the payment certificate or paid invoice indicating that the Consultant has made full repayment of the amount of the advance payment, or on the __ day of [month]_____, [year]__,² whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 revision, ICC Publication No. 758.

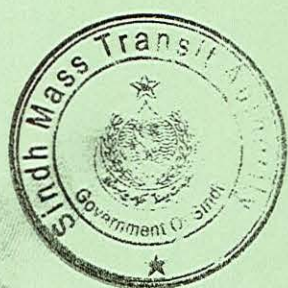
[signature(s)]

{Note: All italicized text is for indicative purposes only to assist in preparing this form and shall be deleted from the final product.}

² Insert the expected expiration date. In the event of an extension of the time for completion of the Contract, the Client would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Client might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Client's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."



APPENDIX E - CODE OF CONDUCT (ES)



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Dar Al-Handasah Consultants
(Shair and Partners)

In Joint Venture

NES National Engineering Services
PAK Pakistan (Pvt.) Limited

FORM TECH-7 (FOR FTP AND STP)

CODE OF CONDUCT FOR EXPERTS (ES) FORM

We are the Consultant, M/s Dar Al Handasah Consultants (Shair and Partners) in joint venture with M/s National Engineering Services Pakistan (Pvt) Limited. We have signed a contract with **Sindh Mass Transit Authority** for **Consulting Services for Preparation of Detailed Design, Procurement Support and Construction Supervision for Karachi Mobility Project (Yellow BRT)**. These Services will be carried out at **Karachi**. Our contract requires us to implement measures to address environmental and social risks related to the Services, including the risks of sexual exploitation, sexual abuse and sexual harassment.

This Code of Conduct is part of our measures to deal with environmental and social risks related to the Services. It applies to all Experts in places where the Services are being carried out.

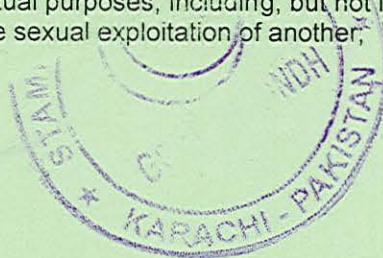
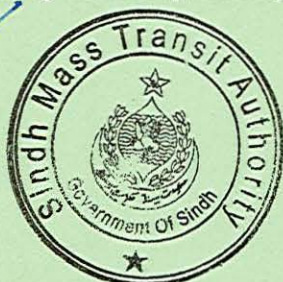
This Code of Conduct identifies the behavior that we require from all Experts.

Our workplace is an environment where unsafe, offensive, abusive or violent behavior will not be tolerated and where all persons should feel comfortable raising issues or concerns without fear of retaliation.

REQUIRED CONDUCT

Experts shall:

1. carry out his/her duties competently and diligently;
2. comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Experts and any other person;
3. maintain a safe working environment including, as applicable, by:
 - a. ensuring that workplaces, equipment and processes under each person's control are safe and without risk to health;
 - b. wearing required personal protective equipment; and
 - c. following applicable emergency operating procedures.
4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
6. not engage in Sexual Harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature with other Experts, Contractor's Personnel (if applicable) or Client's Personnel;
7. not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another.





Dar Al-Handasah Consultants
(Shair and Partners)

in Joint Venture

NEE National Engineering Services
PAK Pakistan (Pvt.) Limited

8. not engage in Sexual Abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;
9. not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
10. complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH);
11. report violations of this Code of Conduct; and
12. not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Client, or who makes use of grievance mechanism for Experts, if any, or the project's Grievance Redress Mechanism.

RAISING CONCERNS

If any person observes behaviour that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly. This can be done in the following way:

1. Contact **Mr. Saeed Hussain** in writing at this address **13th Floor, NICL Building, Abbasi Shaheed Road, Karachi** or by telephone at **021-99090600**.

The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referralsto service providers that may help support the person who experienced the alleged incident, asappropriate.

There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.





Dar Al-Handasah Consultants
(Share and Partners)

In Joint Venture

NES National Engineering Services
PAK Pakistan (Pvt.) Limited

CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT

Any violation of this Code of Conduct by Experts may result in serious consequences, up to and including termination and possible referral to legal authorities.

FOR EXPERT:

I have received a copy of this Code of Conduct written in a language that I comprehend. I understand that if I have any questions about this Code of Conduct, I can contact [enter name of Consultant's contact person(s) with relevant experience] requesting an explanation.

Name of Expert: [insert name]

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Consultant:

Signature: _____ Date: (day
month year): _____

ATTACHMENT 1: Behaviors constituting Sexual Exploitation and Abuse (SEA)
and behaviors constituting Sexual Harassment (SH)



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Dar Al-Handasah Consultants
(Shair and Partners)

in Joint Venture

NES National Engineering Services
PAK Pakistan (Pvt.) Limited

ATTACHMENT 1 TO THE CODE OF CONDUCT FORM
BEHAVIORS CONSTITUTING SEXUAL EXPLOITATION AND ABUSE (SEA) AND
BEHAVIORS CONSTITUTING SEXUAL HARASSMENT (SH)

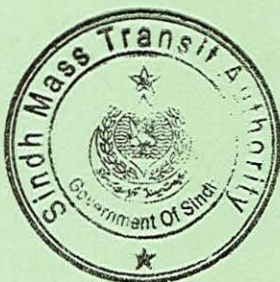
The following non-exhaustive list is intended to illustrate types of prohibited behaviors:

(1) Examples of sexual exploitation and abuse include, but are not limited to:

- An Expert tells a member of the community that he/she can get them jobs related to the Services (e.g. cooking and cleaning) in exchange for sex.
- An Expert that is connecting electricity input to households says that he can connect women-headed households to the grid in exchange for sex.
- An Expert rapes, or otherwise sexually assaults a member of the community.
- An Expert denies a person access to the Site unless he/she performs a sexual favor.
- An Expert tells a person applying for employment under the Contract that he/she will only hire him/her if he/she has sex with him/her.

(2) Examples of sexual harassment in a work context

- An Expert comment on the appearance of another Expert (either positive or negative) and sexual desirability.
- When An Expert complains about comments made by another Expert on his/her appearance, the other Expert comment that he/she is "asking for it" because of how he/she dresses.
- Unwelcome touching of an Expert or Employer's Personnel by another Expert.
- An Expert tells another Expert that he/she will get him/her a salary raise, or promotion if he/she sends him/her naked photographs of himself/herself.



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